US011416130B2

(12) **United States Patent**
Sonnino et al.

(10) **Patent No.: US 11,416,130 B2**
(45) **Date of Patent: Aug. 16, 2022**

(54) **MOVING APPLICATIONS ON MULTI-SCREEN COMPUTING DEVICE**

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(73) Assignee: **Microsoft Technology Licensing, LLC**, Redmond, WA (US)

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(21) Appl. No.: **16/717,988**

(22) Filed: **Dec. 17, 2019**

(65) **Prior Publication Data**

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Related U.S. Application Data

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(51) **Int. Cl.**
G06F 3/0484 (2013.01)
G06F 3/0488 (2013.01)
(Continued)

(52) **U.S. Cl.**
CPC ***G06F 3/04845*** (2013.01); ***G06F 1/1616*** (2013.01); ***G06F 3/0486*** (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC G06F 3/04845; G06F 3/04842; G06F 3/04883; G06F 3/1423; G06F 2203/04803
See application file for complete search history.

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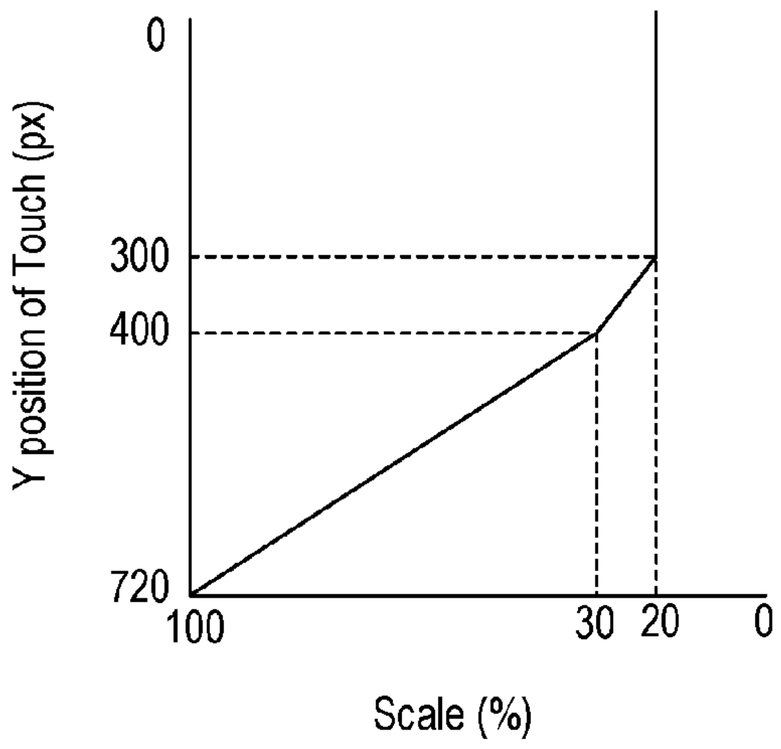
Primary Examiner — James T Tsai
(74) *Attorney, Agent, or Firm* — Alleman Hall Creasman & Tuttle LLP

(57) **ABSTRACT**

Examples are related to operating a user interface of a dual-screen computing device. One example provides a computing device, comprising a first portion comprising a first display and a first touch sensor, and a second portion comprising a second display and a second touch sensor, the second portion connected to the first via a hinge, the hinge defining a seam between the first display and the second display. The computing device is configured to receive a touch input at the first display moving an application that is currently displayed on the first display and not on the second display toward the second display, detect the touch input

(Continued)



releasing the application within a predetermined area, and span the application across the first display and the second display.

15 Claims, 23 Drawing Sheets

(51) **Int. Cl.**

G06F 3/14	(2006.01)
G06F 3/0486	(2013.01)
G06F 1/16	(2006.01)
G06F 3/04845	(2022.01)
G06F 3/04842	(2022.01)
G06F 3/04883	(2022.01)

(52) **U.S. Cl.**
CPC ***G06F 3/04842*** (2013.01); ***G06F 3/04883*** (2013.01); ***G06F 3/1423*** (2013.01); *G06F 2203/04803* (2013.01)

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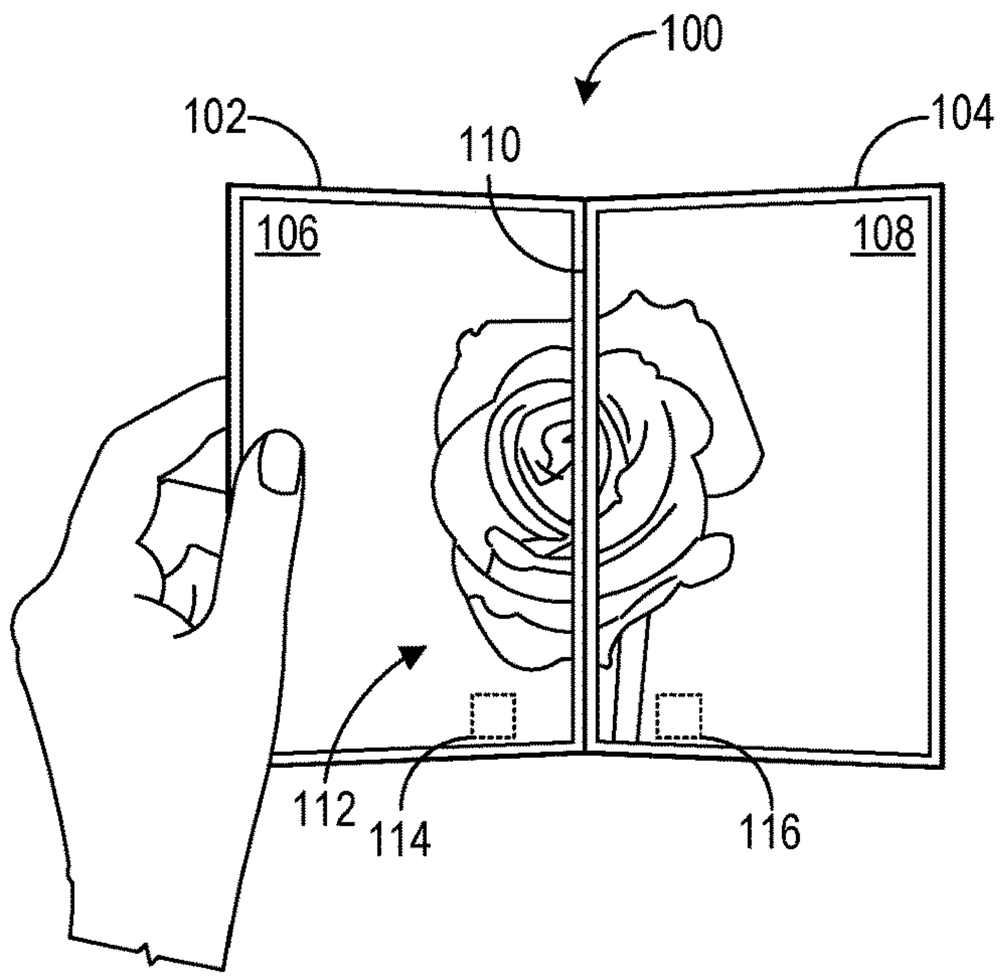

FIG. 1

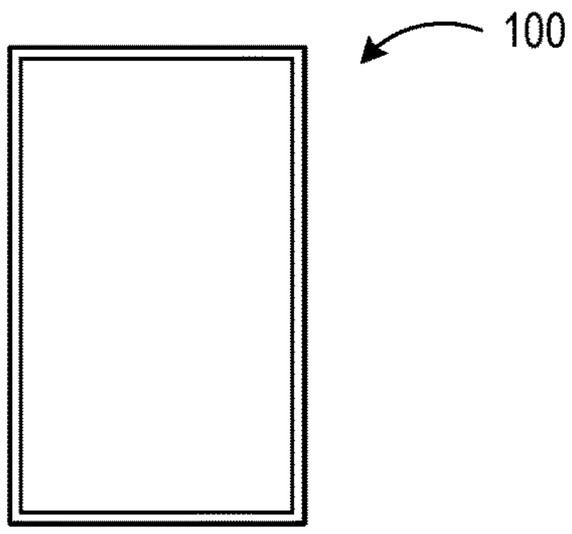

FIG. 2

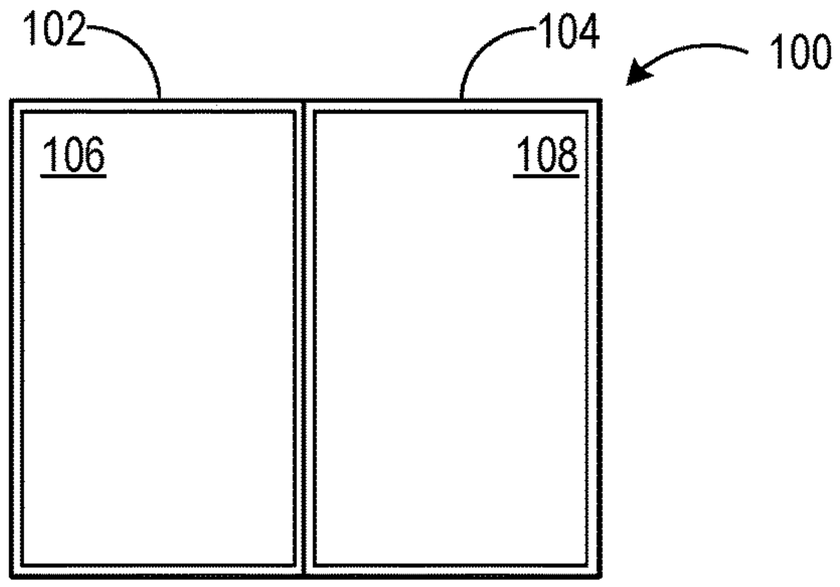

FIG. 3

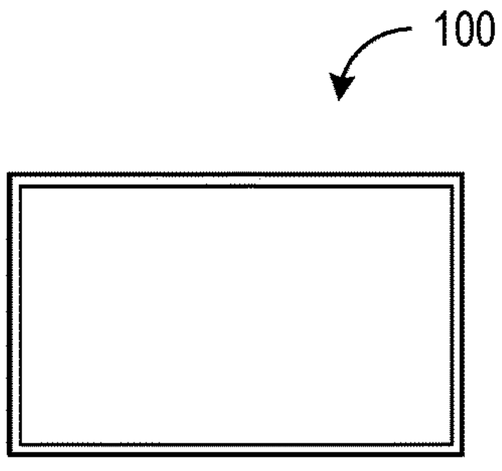

FIG. 4

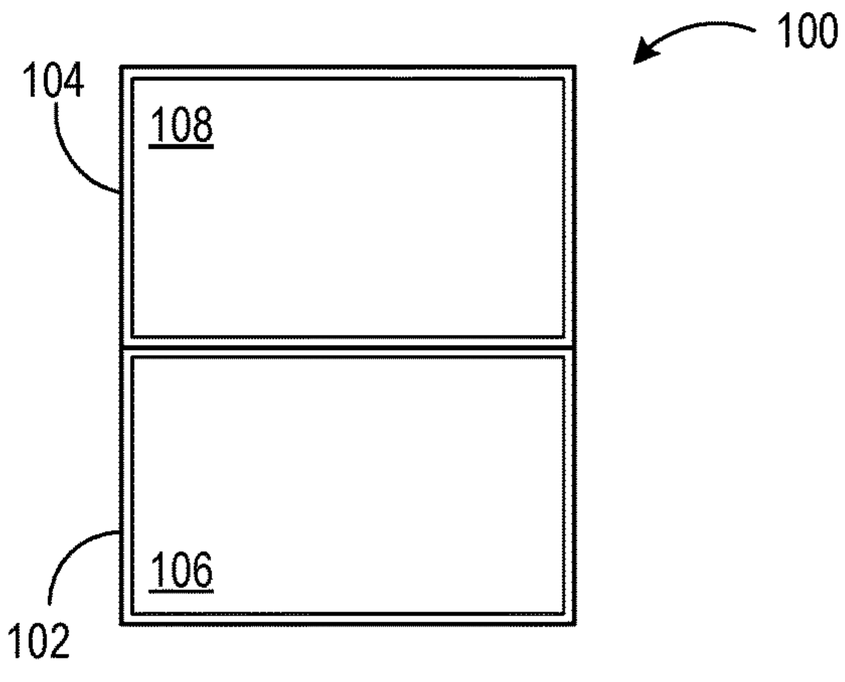

FIG. 5

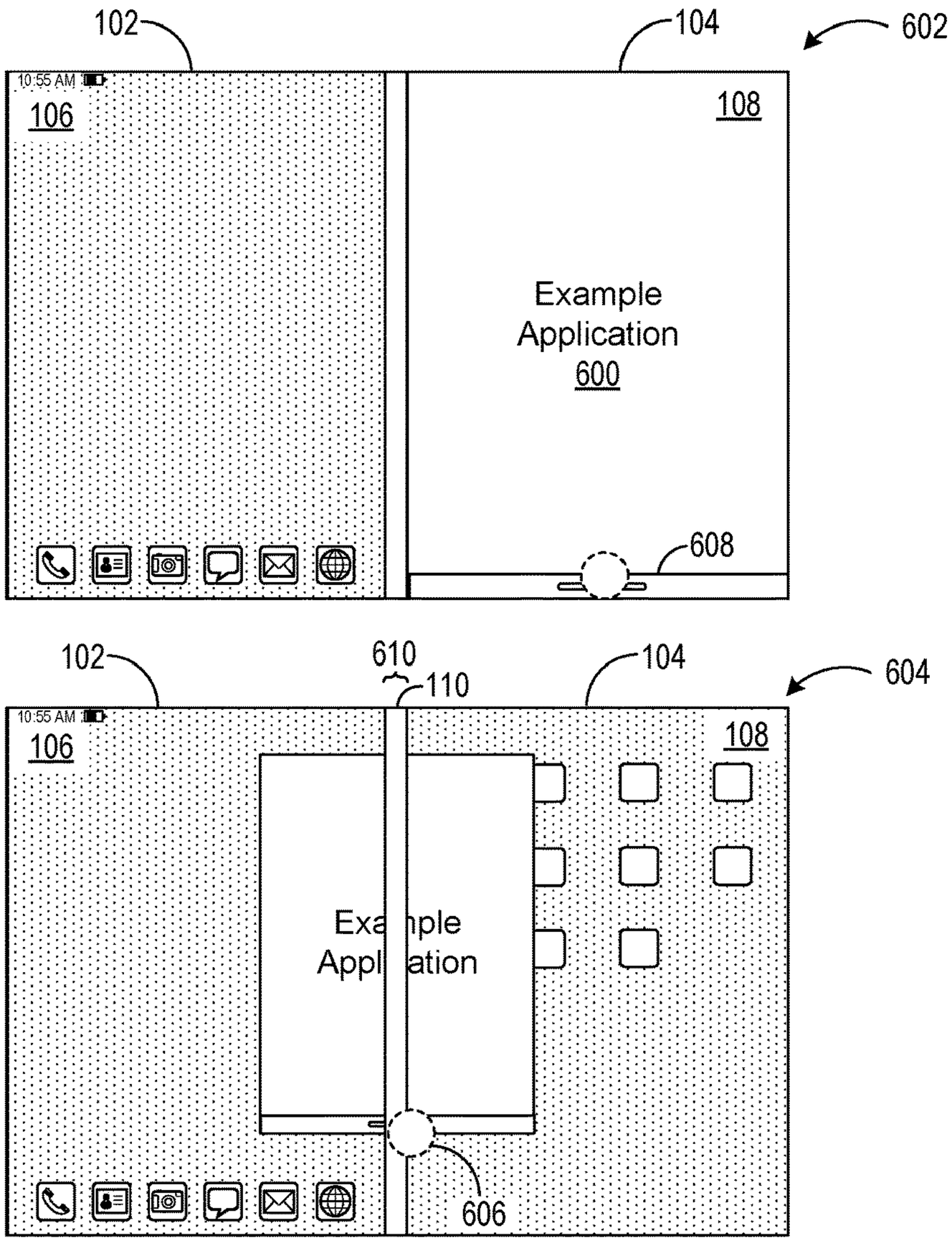
102
104
602
10:55 AM
106
108
Example
Application
600
608
102
610
110
104
604
10:55 AM
106
108
Exa nple
Appl ation
606
606
610
608
612
10:55 AM
602
604
Exa nple
Appl ation

FIG. 6A

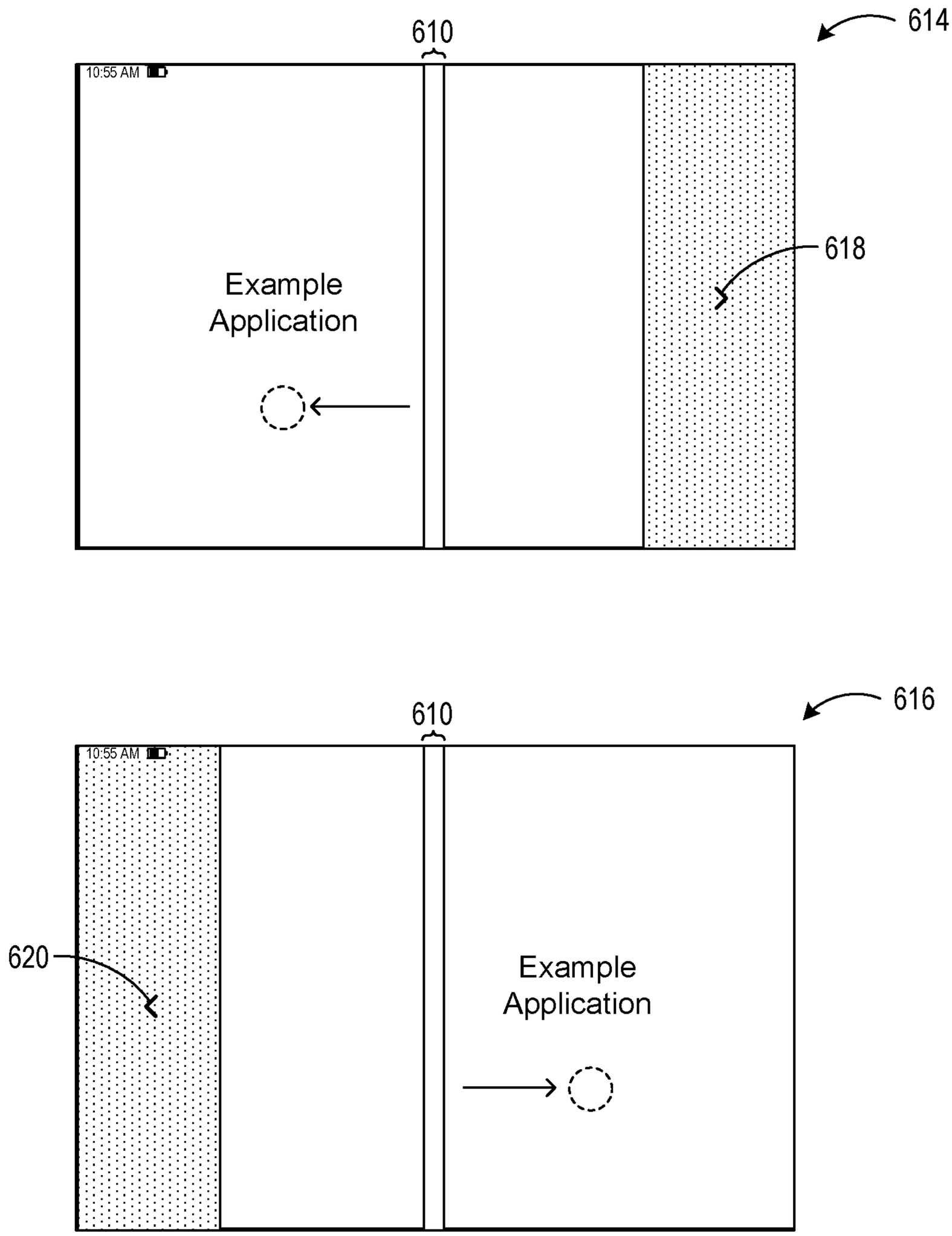
610
614
10:55 AM
Example
Application
618
616
610
10:55 AM
620
Example
Application

FIG. 6B

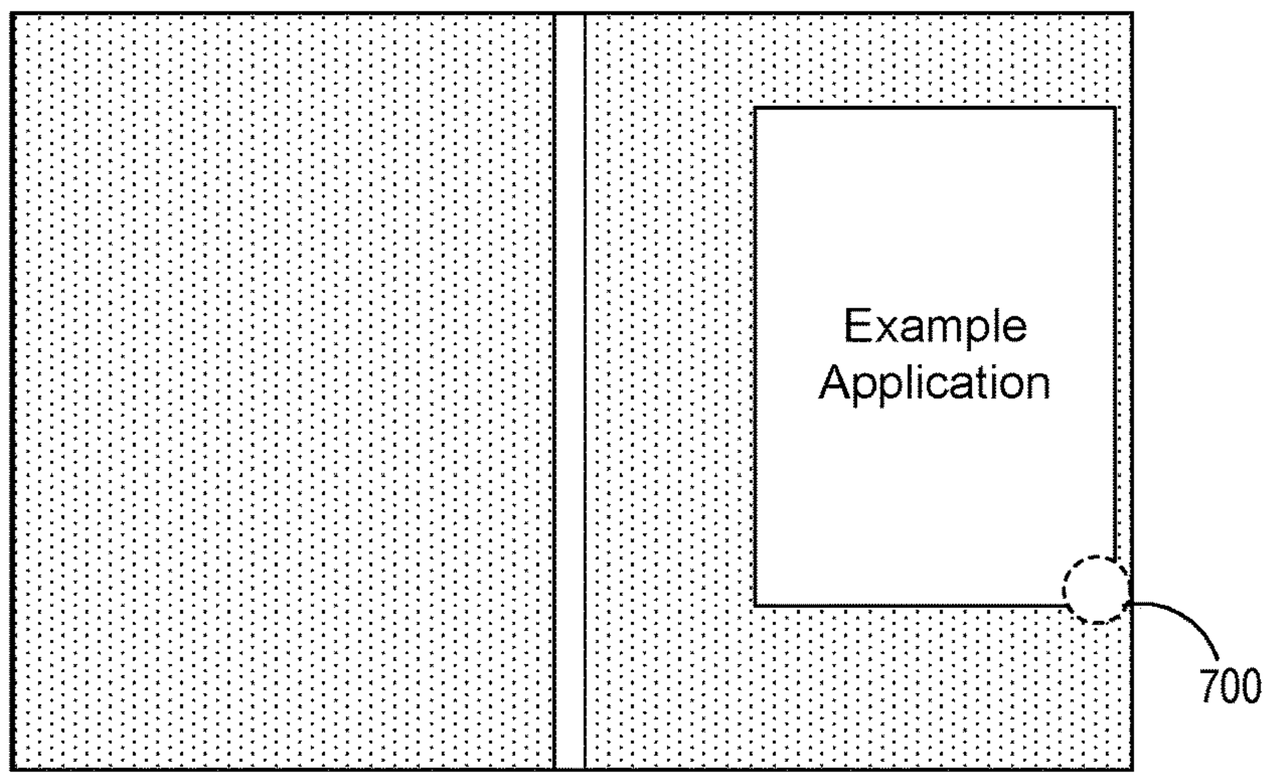

FIG. 7

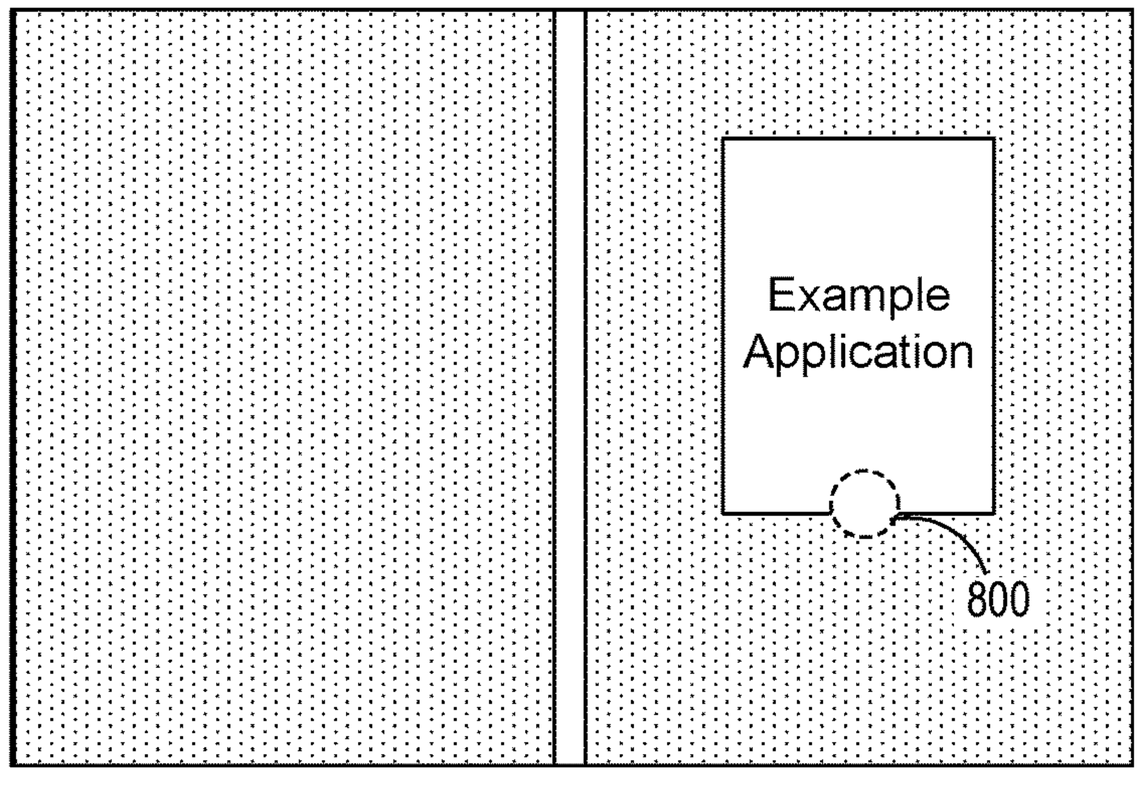

FIG. 8

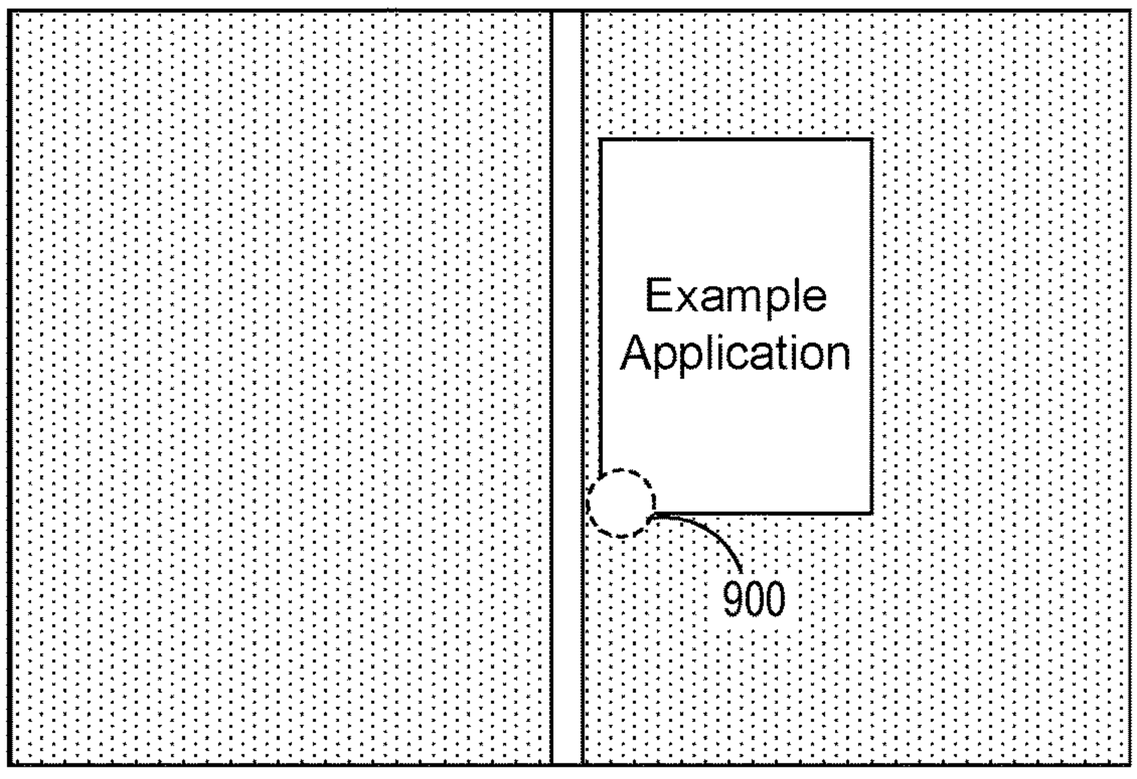

FIG. 9

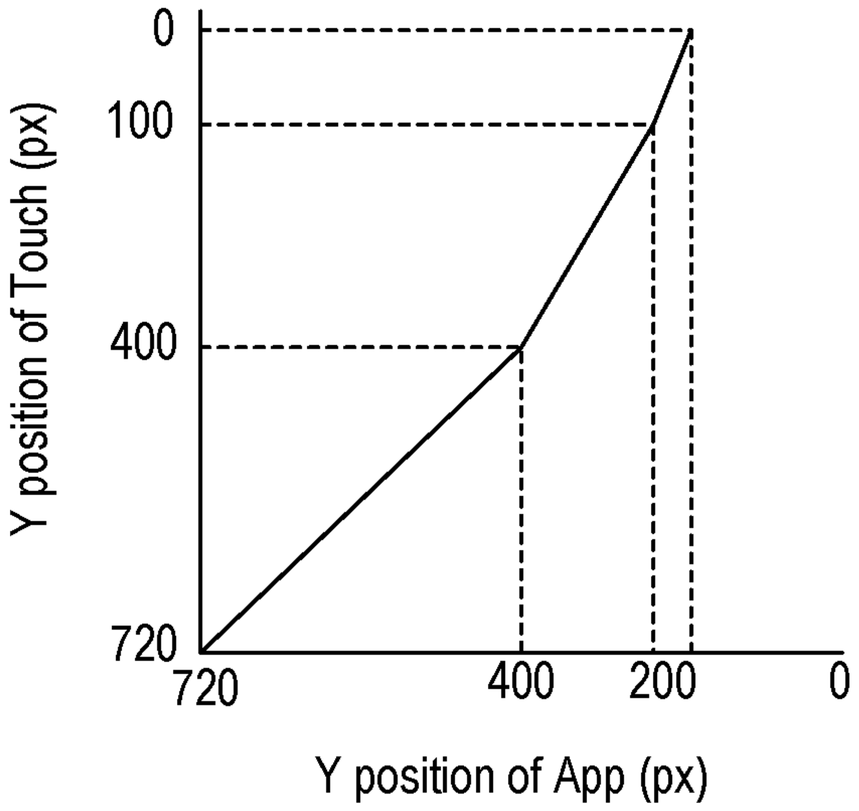
0
100
400
720
Y position of Touch (px)
720
400
200
0
Y position of App (px)

FIG. 10

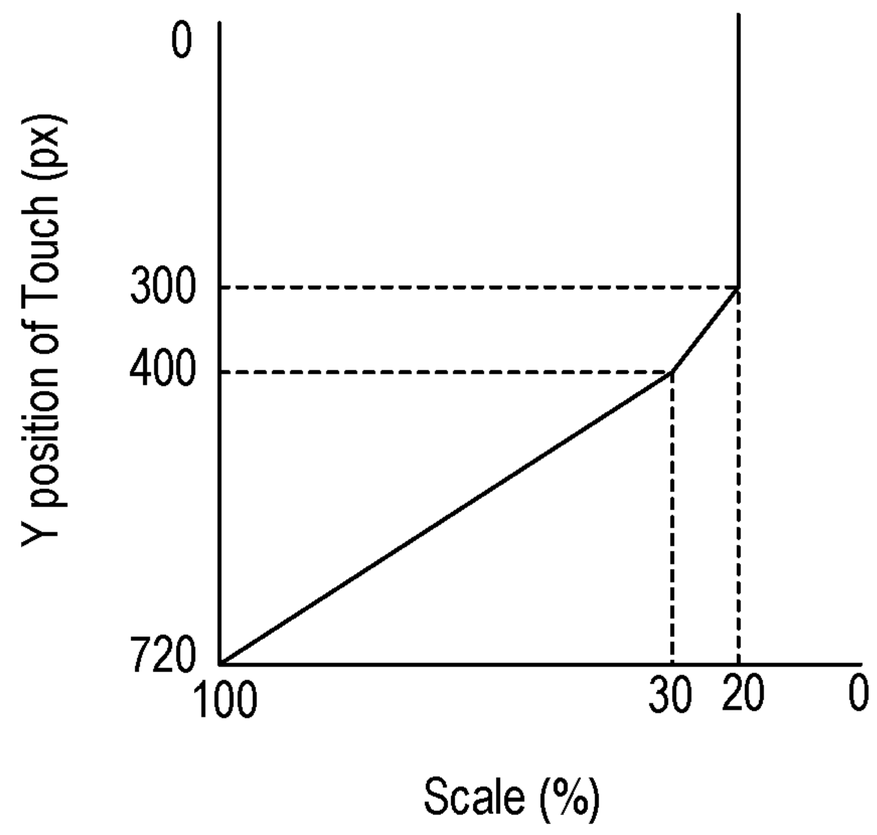
0
300
400
720
Y position of Touch (px)
100
30
20
0
Scale (%)

FIG. 11

FIG. 12

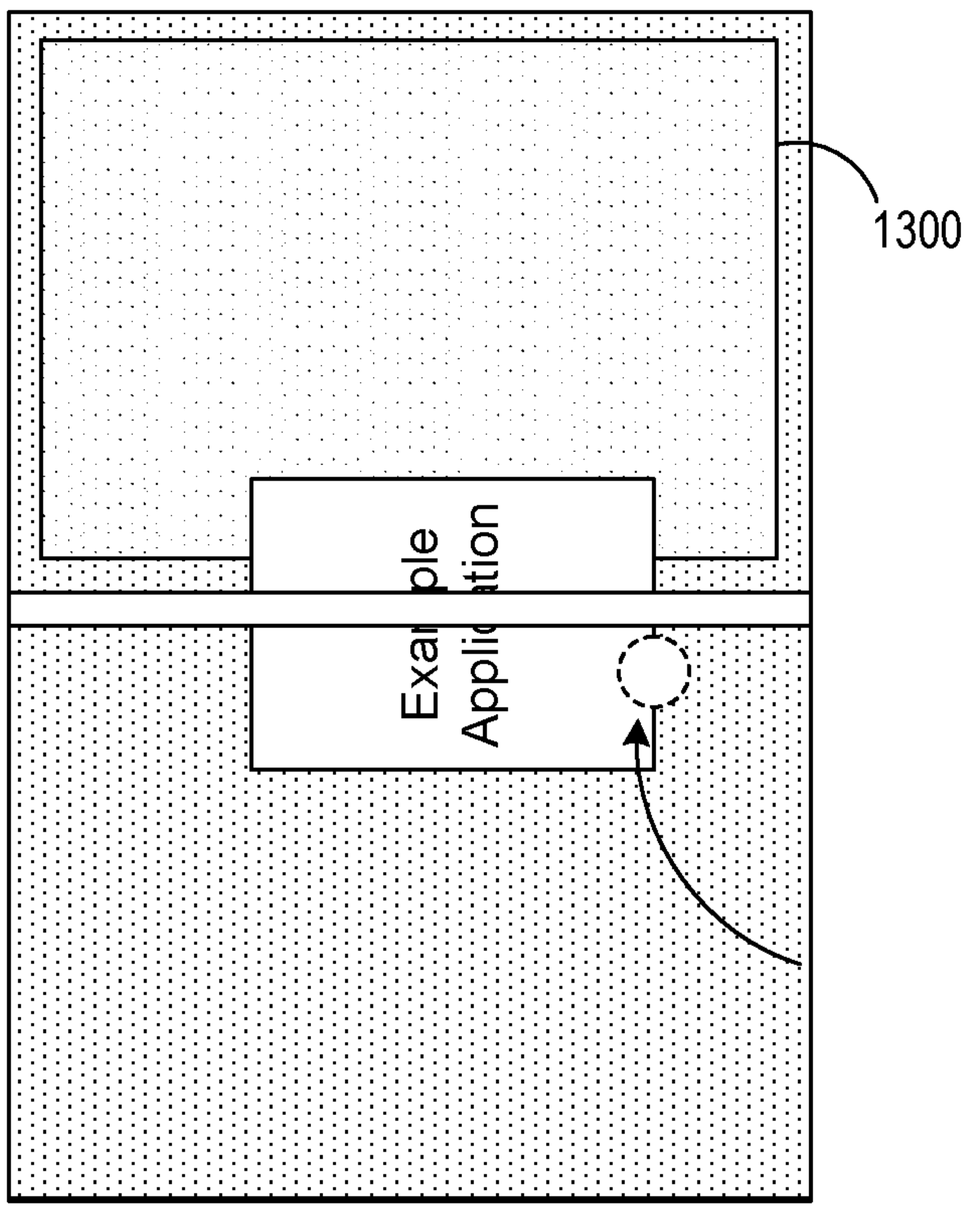

FIG. 13

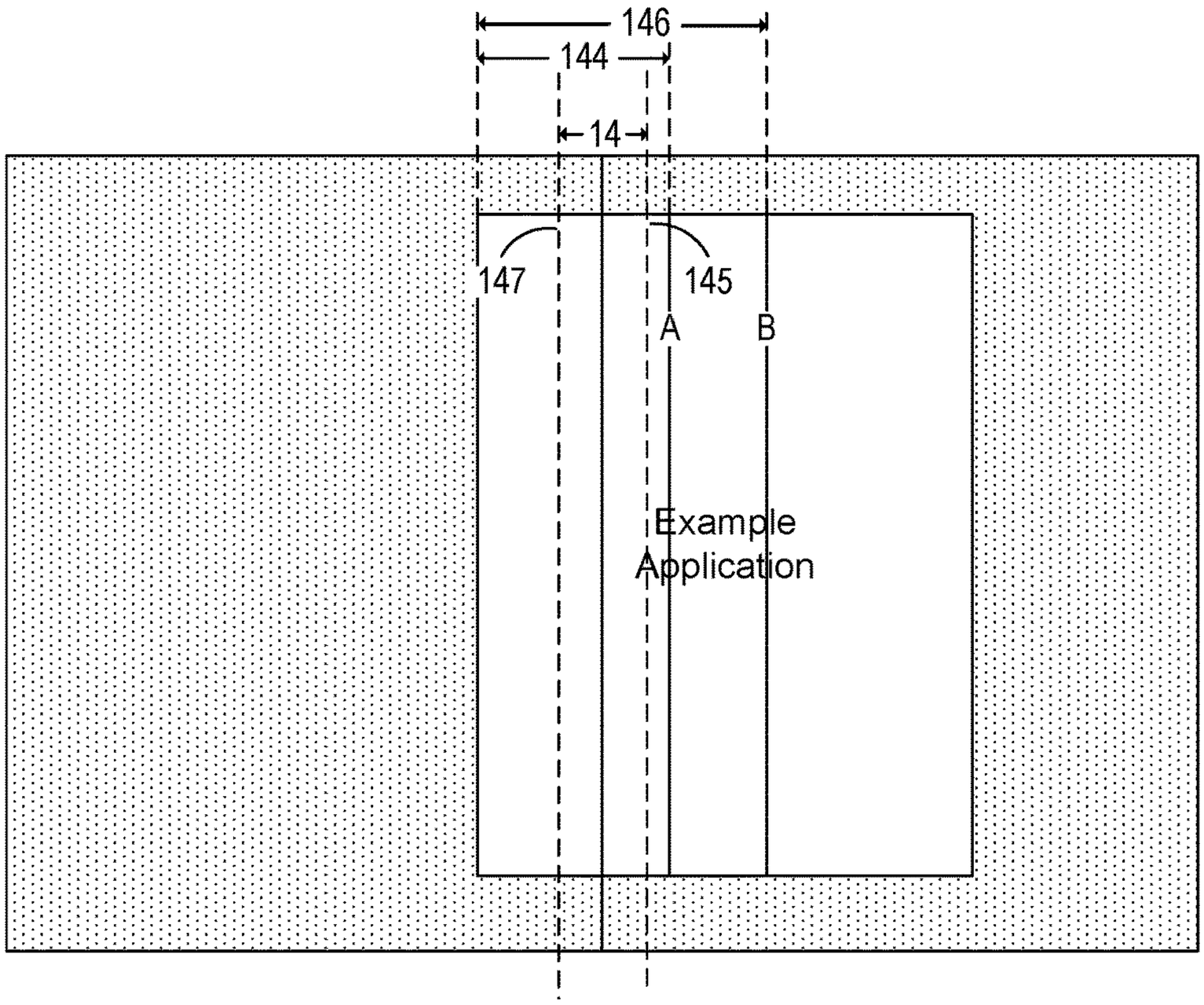
146
144
14
147
145
A
B
Example
Application

FIG. 14

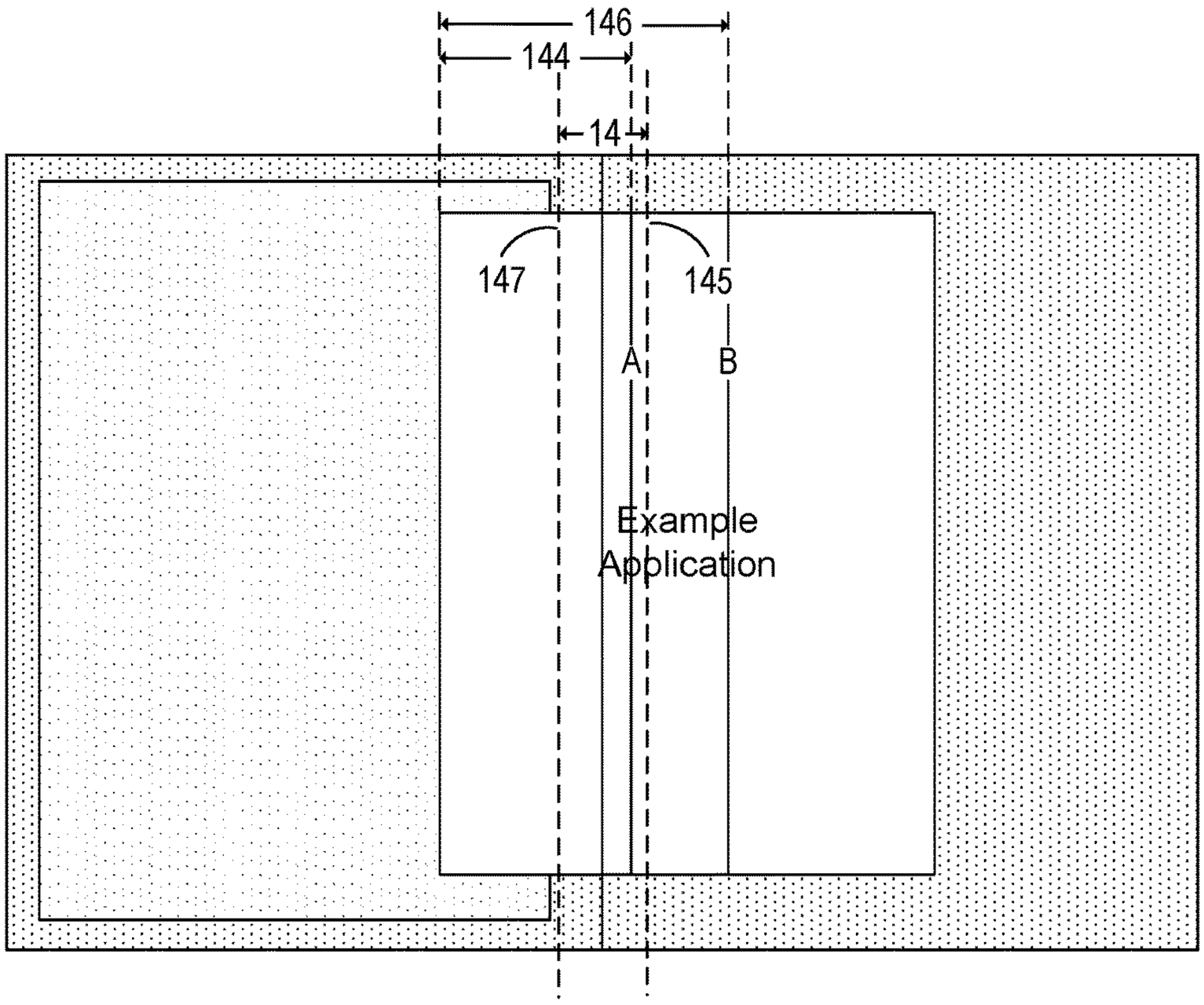
146
144
14
147
145
A
B
Example
Application

FIG. 15

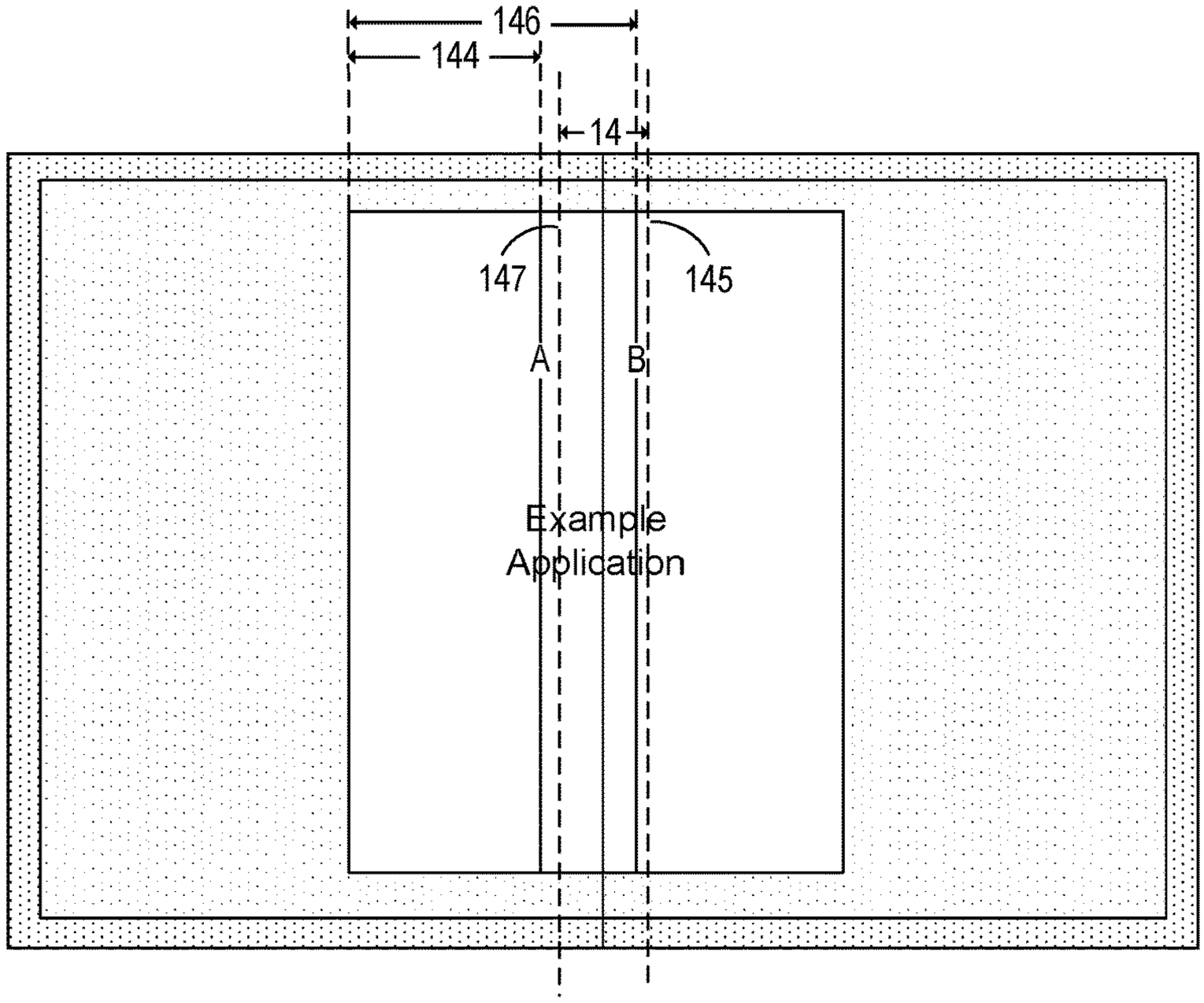
146
144
14
147
145
A
B
Example
Application

FIG. 16

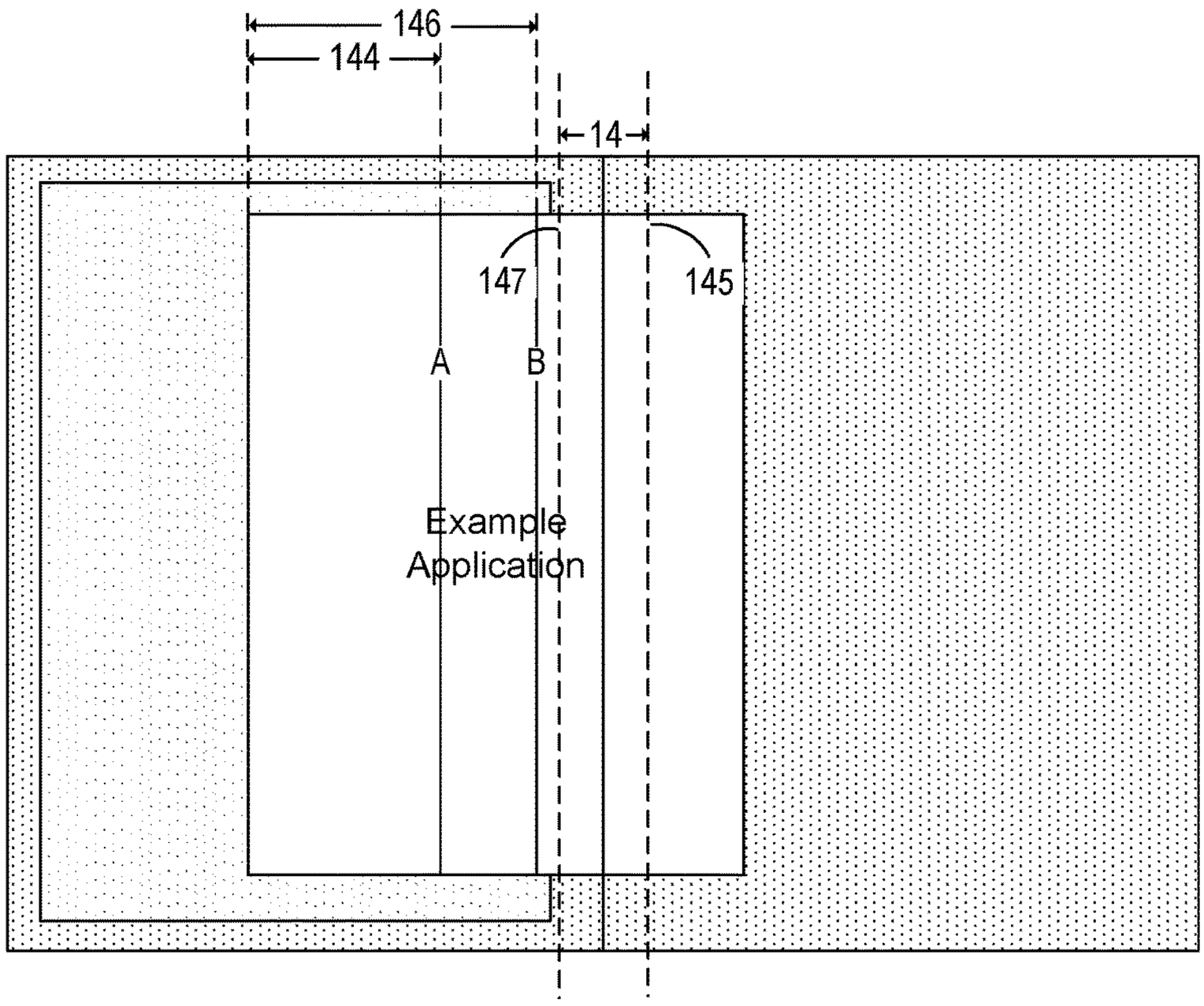
146
144
14
147
145
A
B
Example
Application

FIG. 17

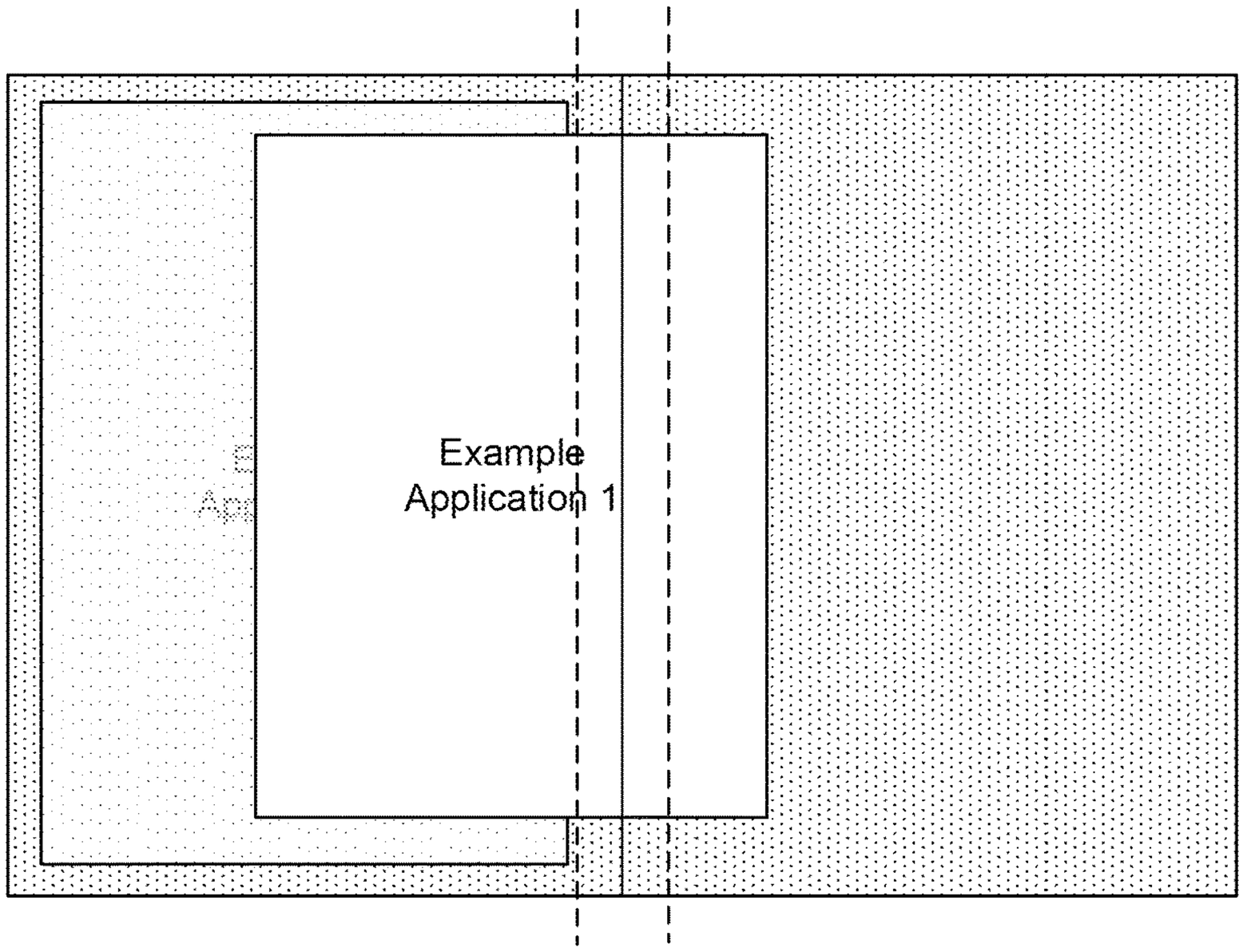
Example
Application 1

FIG. 18

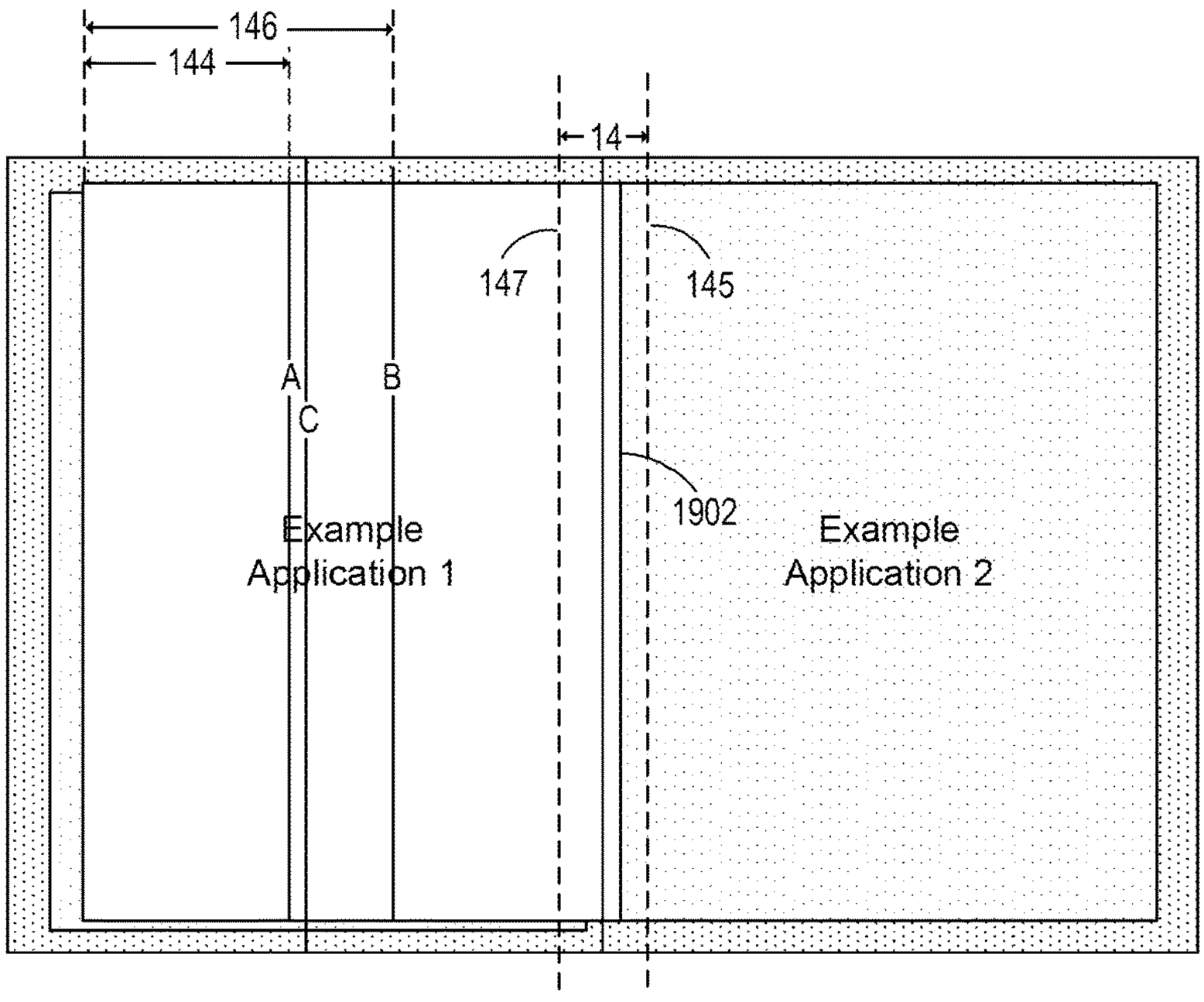
146
144
14
147
145
A
B
C
1902
Example
Application 1
Example
Application 2

FIG. 19

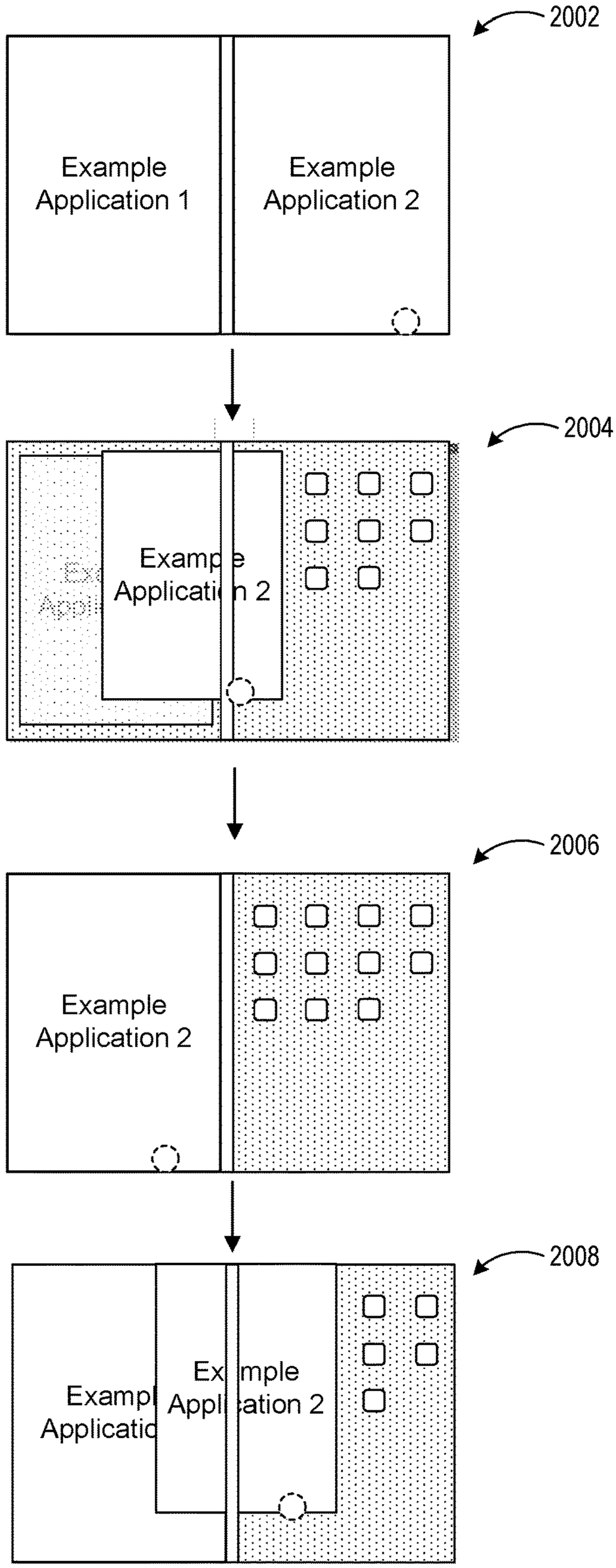
2002
Example Application 1
Example Application 2
2004
Example Application 2
2006
Example Application 2
2008
Example Application 2

FIG. 20

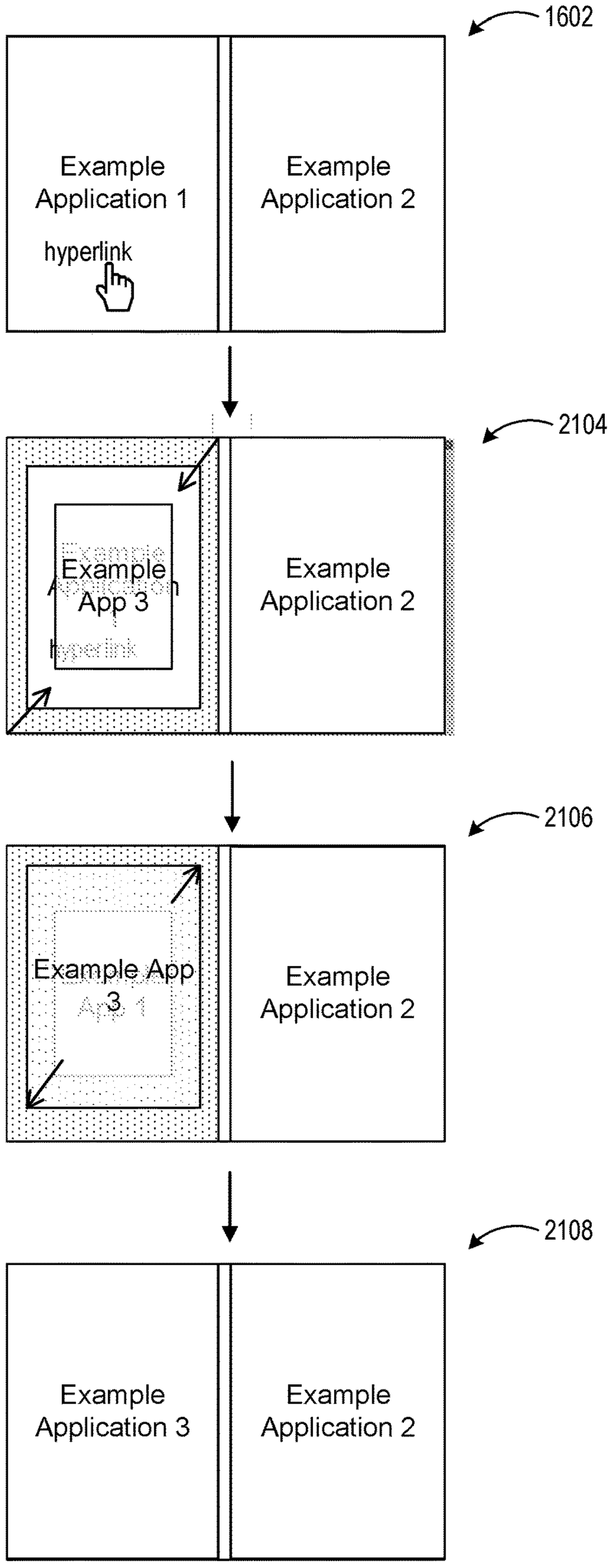
1602
Example Application 1
hyperlink
Example Application 2
2104
Example App 3
Example Application 2
2106
Example App 3
Example Application 2
2108
Example Application 3
Example Application 2

FIG. 21

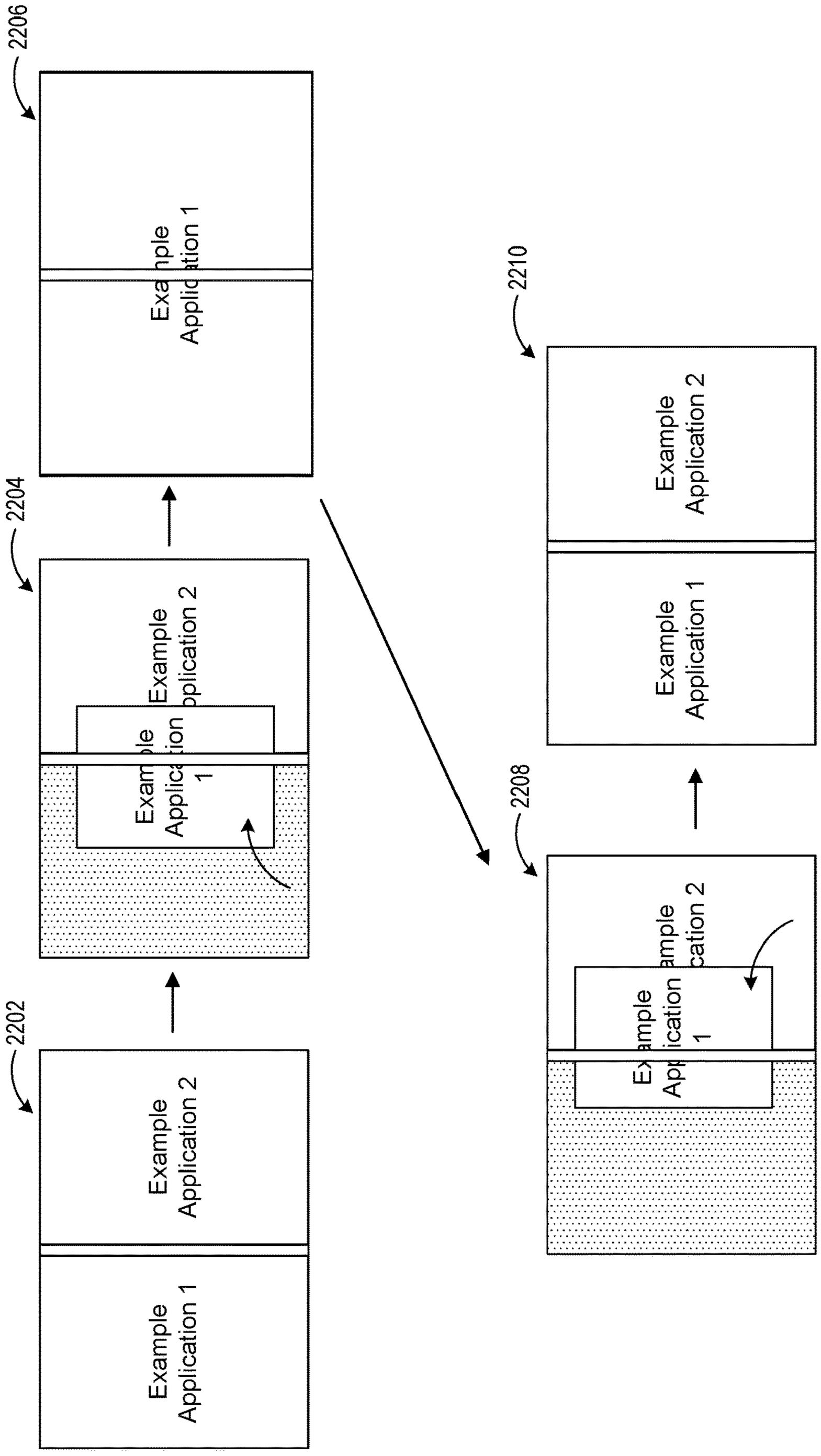
2202
Example Application 1
Example Application 2
2204
Example Application 1
Example Application 2
2206
Example Application 1
Example Application 2
2208
Example Application 1
Example Application 2
2210
Example Application 1
Example Application 2

FIG. 22

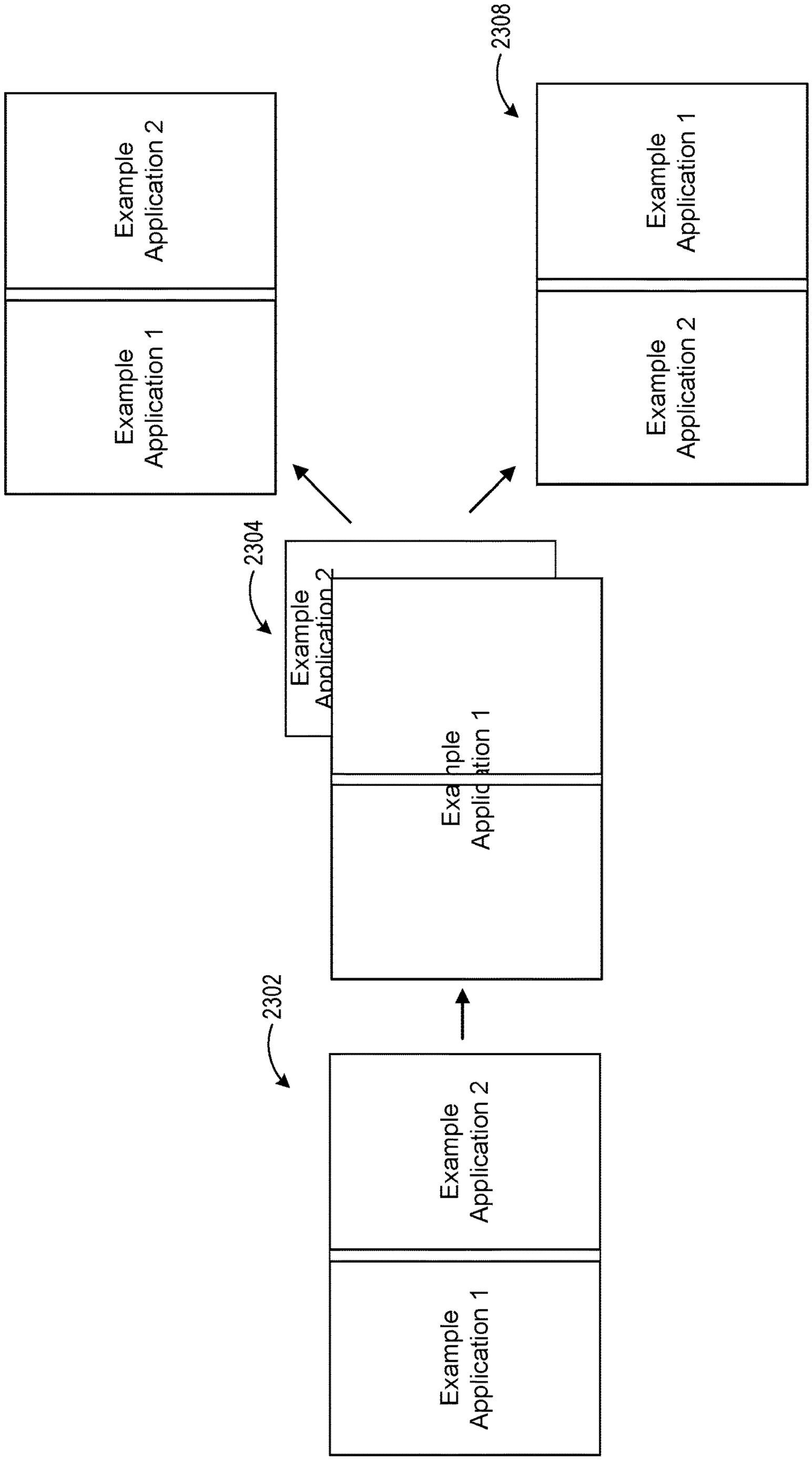
2306
Example Application 2
Example Application 1
2308
Example Application 1
Example Application 2
2304
Example Application 2
Example Application 1
2302
Example Application 2
Example Application 1

FIG. 23

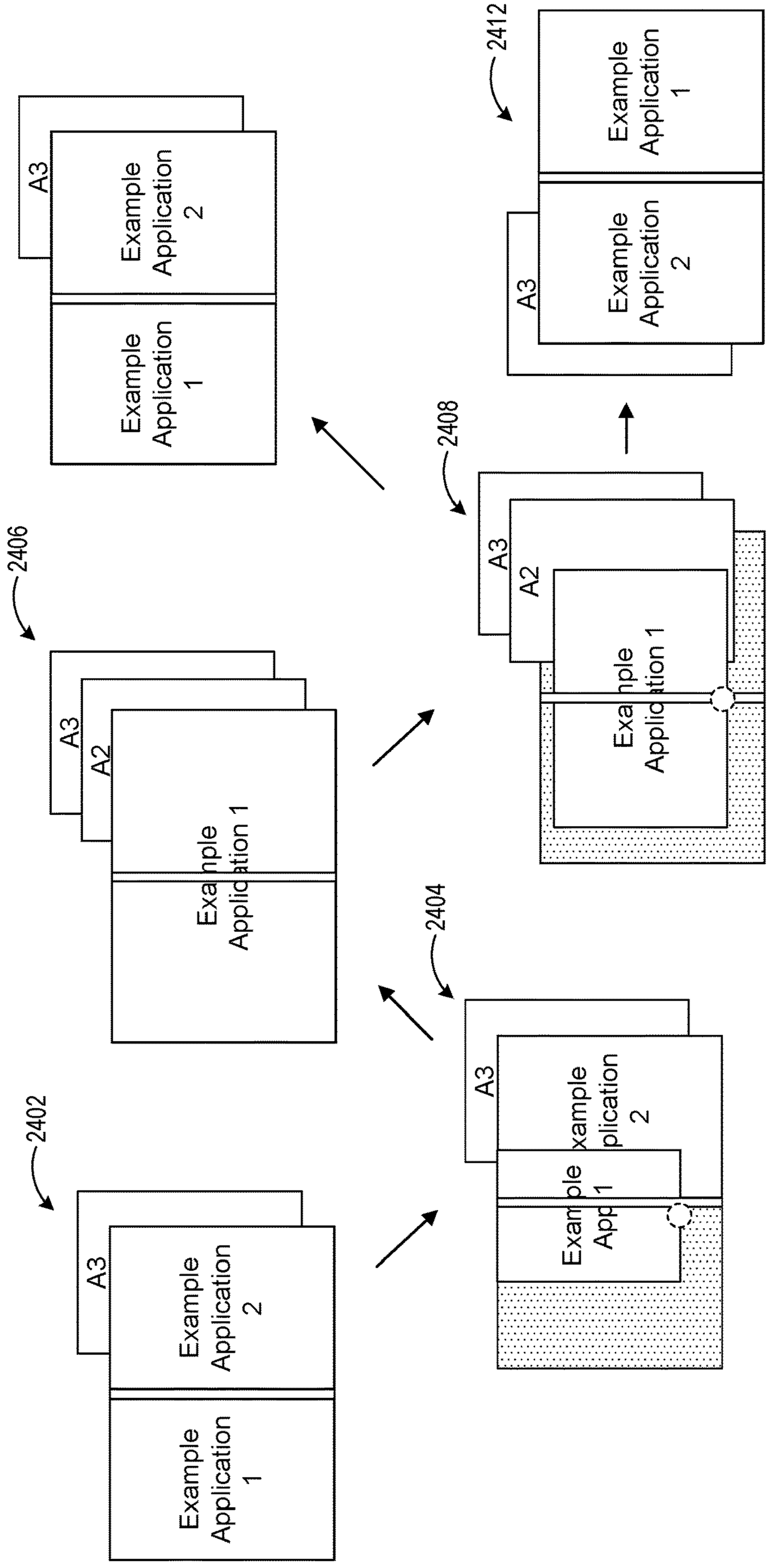
2410
A3
Example Application 2
Example Application 1
2412
Example Application 1
Example Application 2
A3
2408
A3
A2
Example Application 1
2406
A3
A2
Example Application 1
2404
A3
Example Application 2
Example Application 1
2402
A3
Example Application 2
Example Application 1

FIG. 24

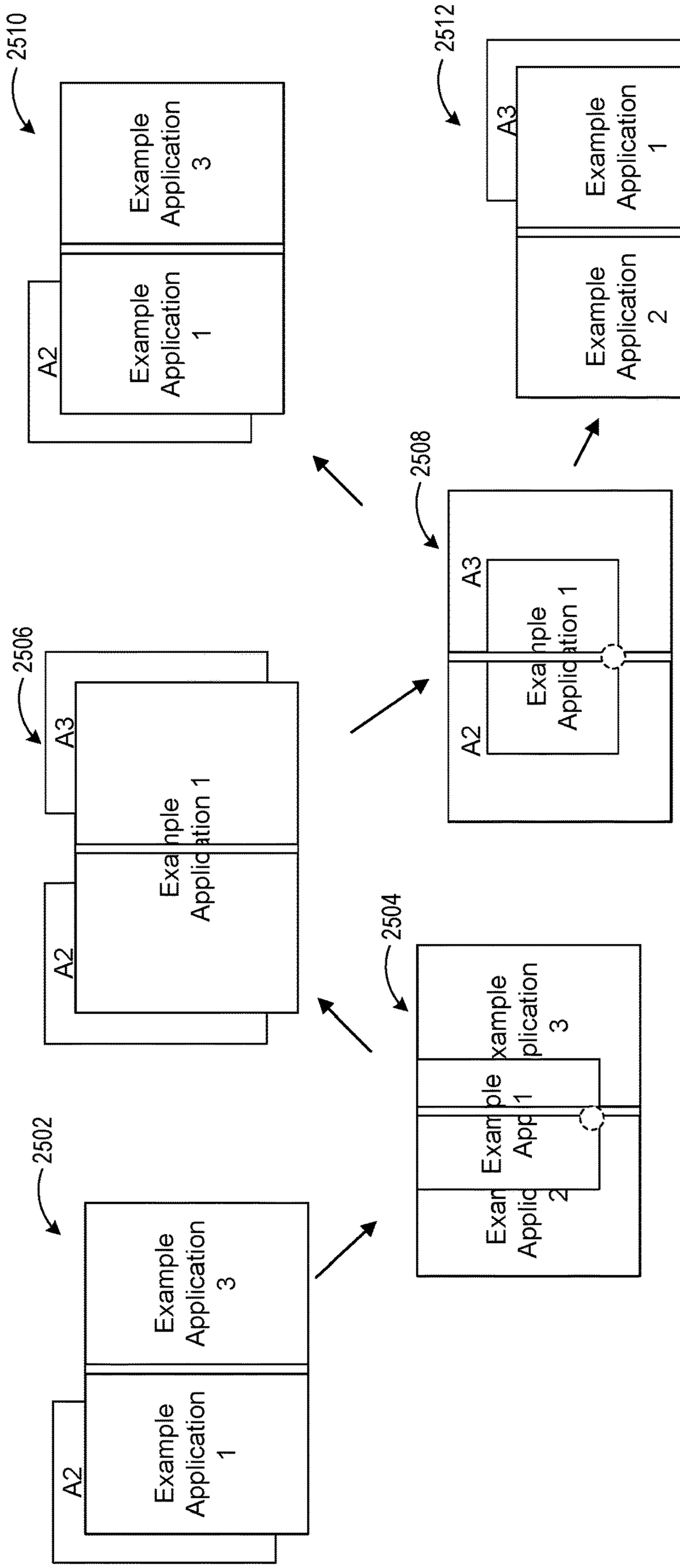
2502
Example Application 3
A2
Example Application 1
2504
Example Application 3
Example Application 1
Example Application 2
2506
A3
Example Application 1
A2
2508
A3
Example Application 1
A2
2510
Example Application 3
A2
Example Application 1
2512
A3
Example Application 1
Example Application 2

FIG. 25

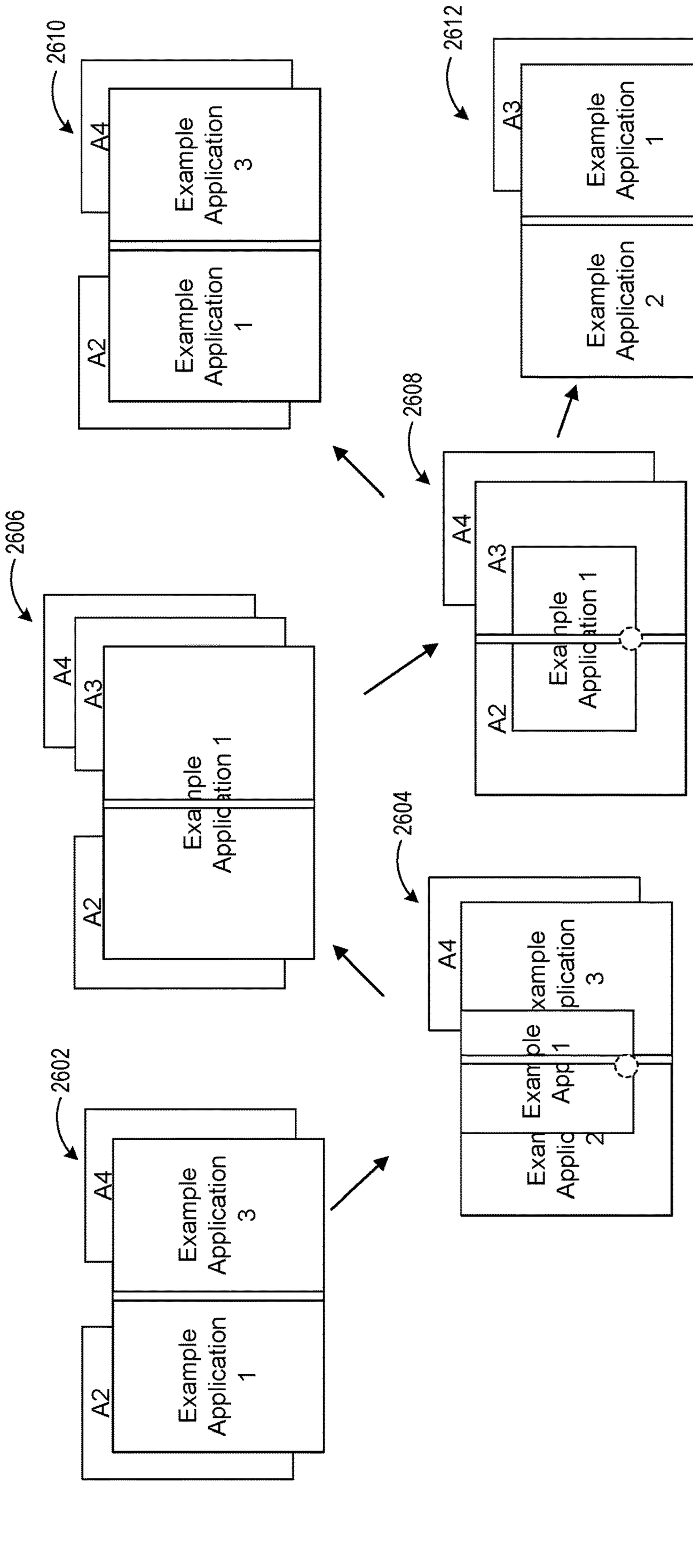
2610
A4
Example Application 3
A2
Example Application 1
2612
A3
Example Application 1
Example Application 2
2608
2606
A4
A3
Example Application 1
A2
2604
A4
Example Application 3
Example Application 1
Example Application 2
2602
A4
Example Application 3
A2
Example Application 1

FIG. 26

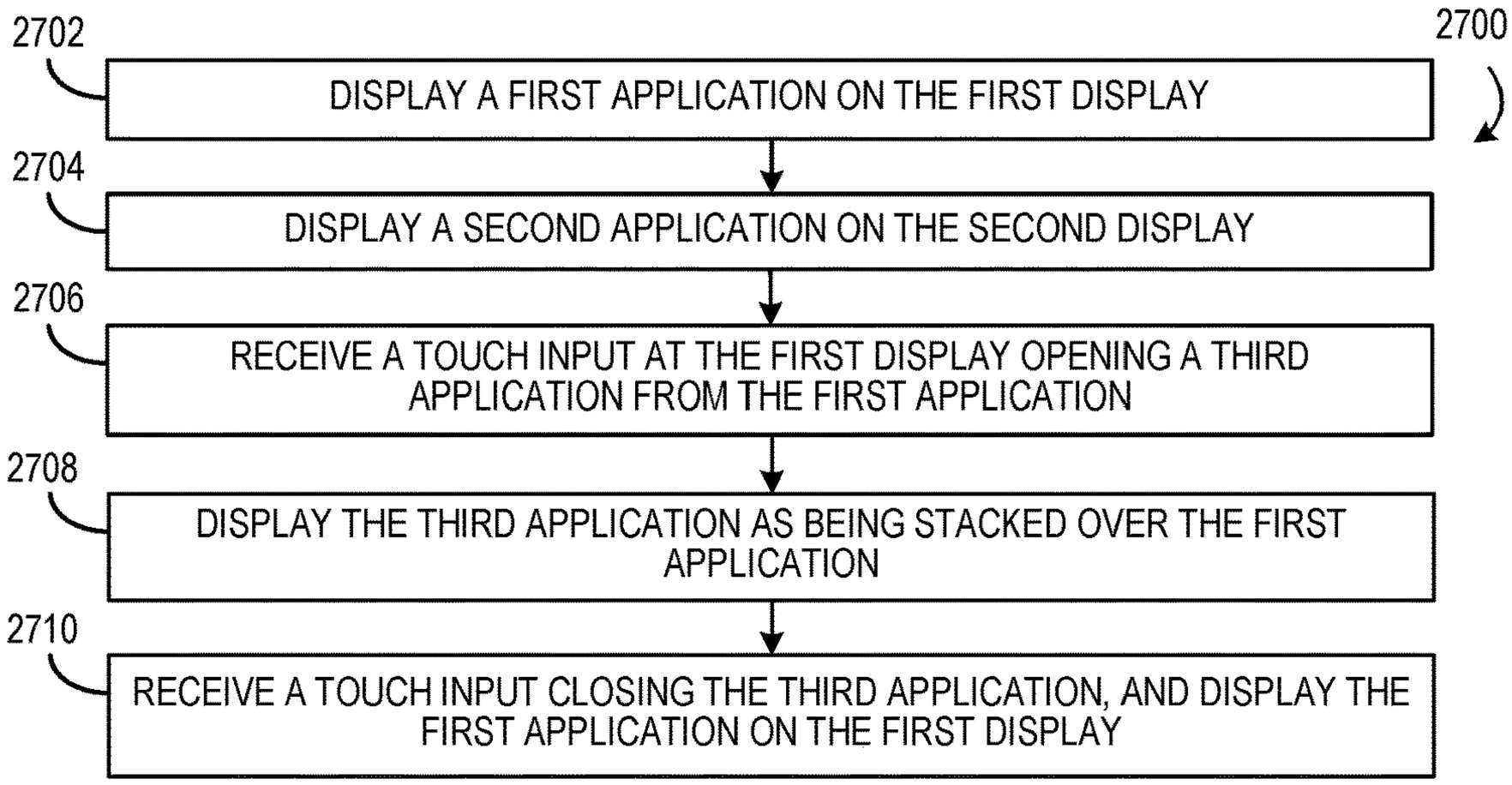

FIG. 27

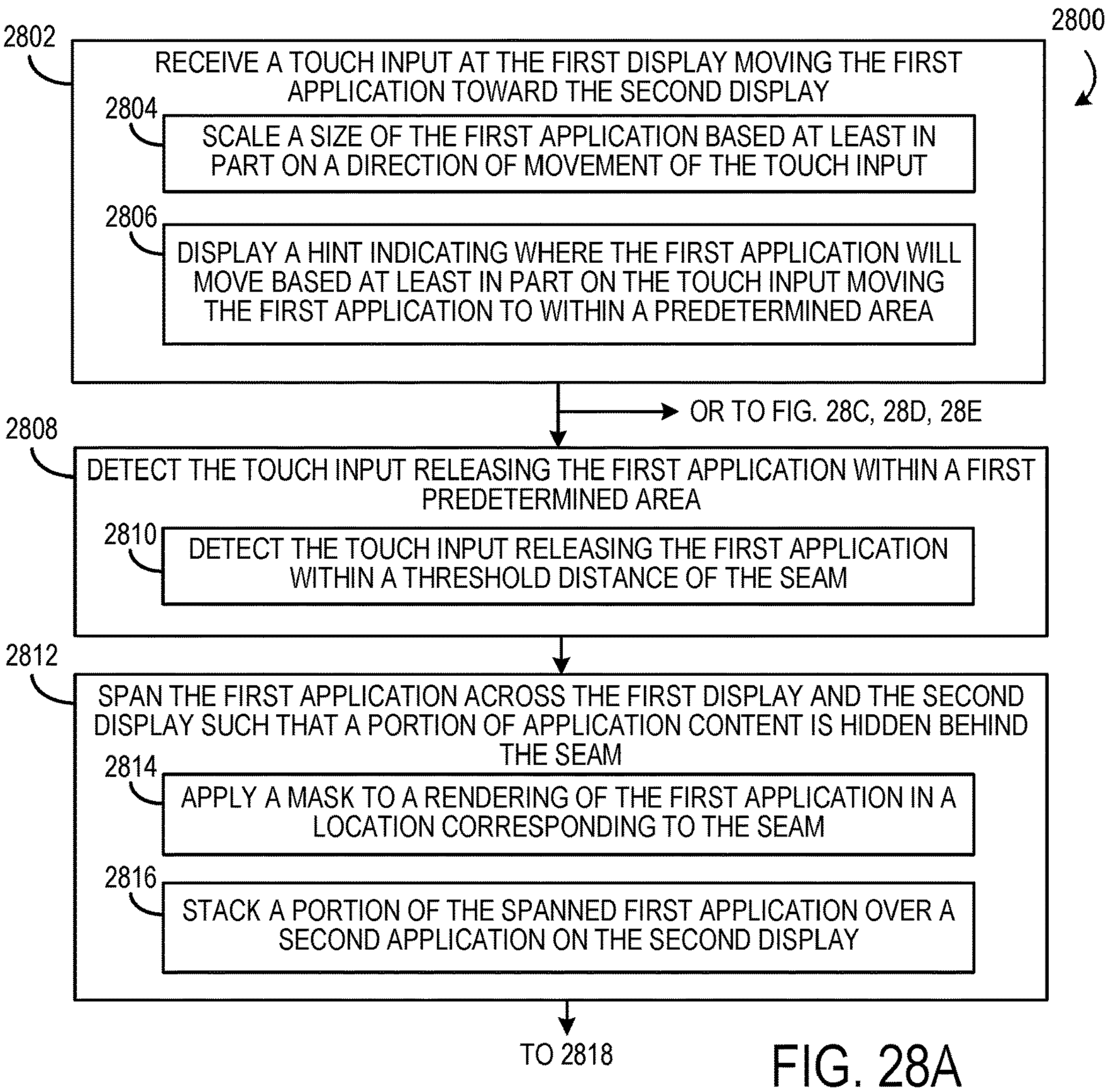

FIG. 28A

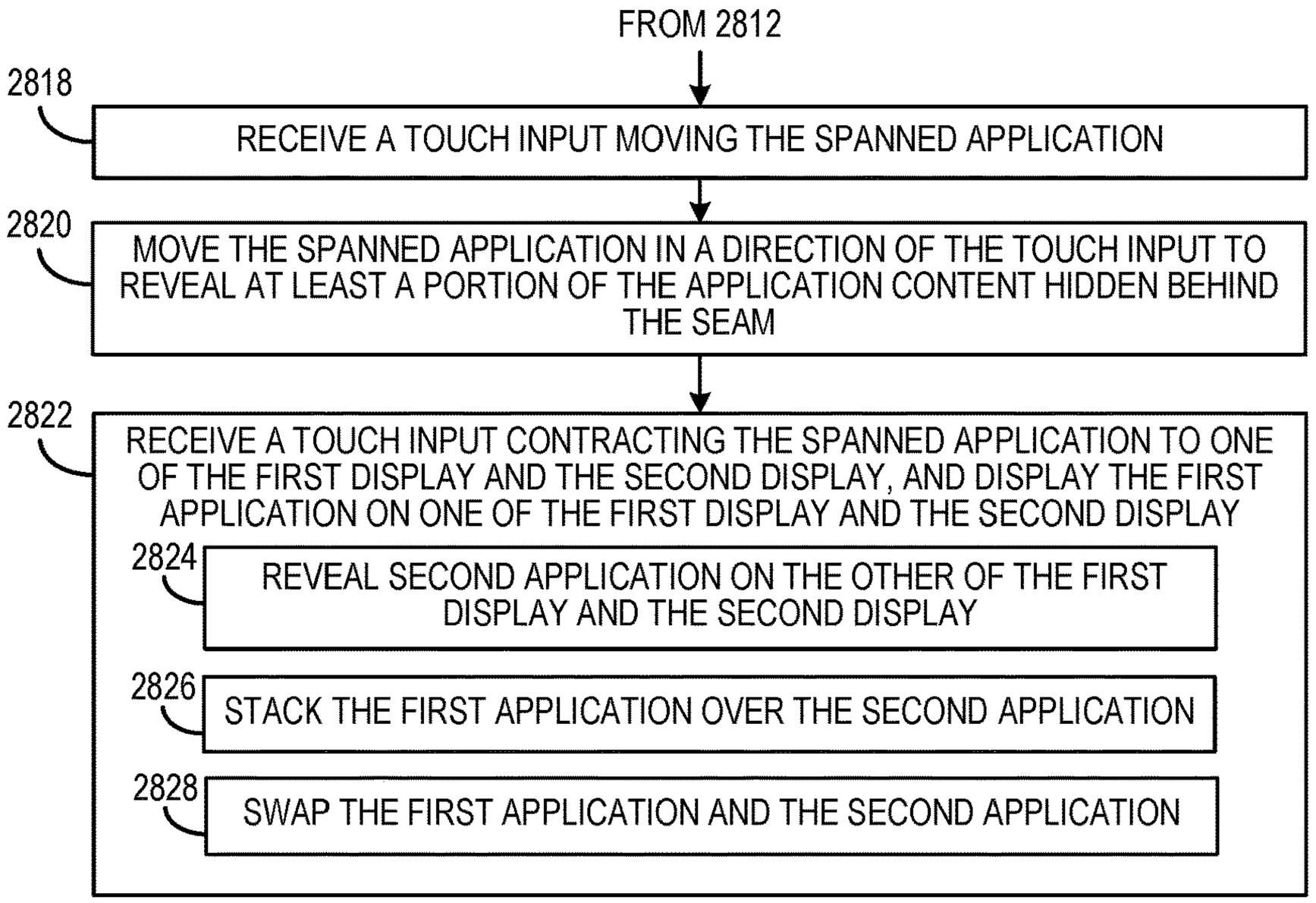

FIG. 28B

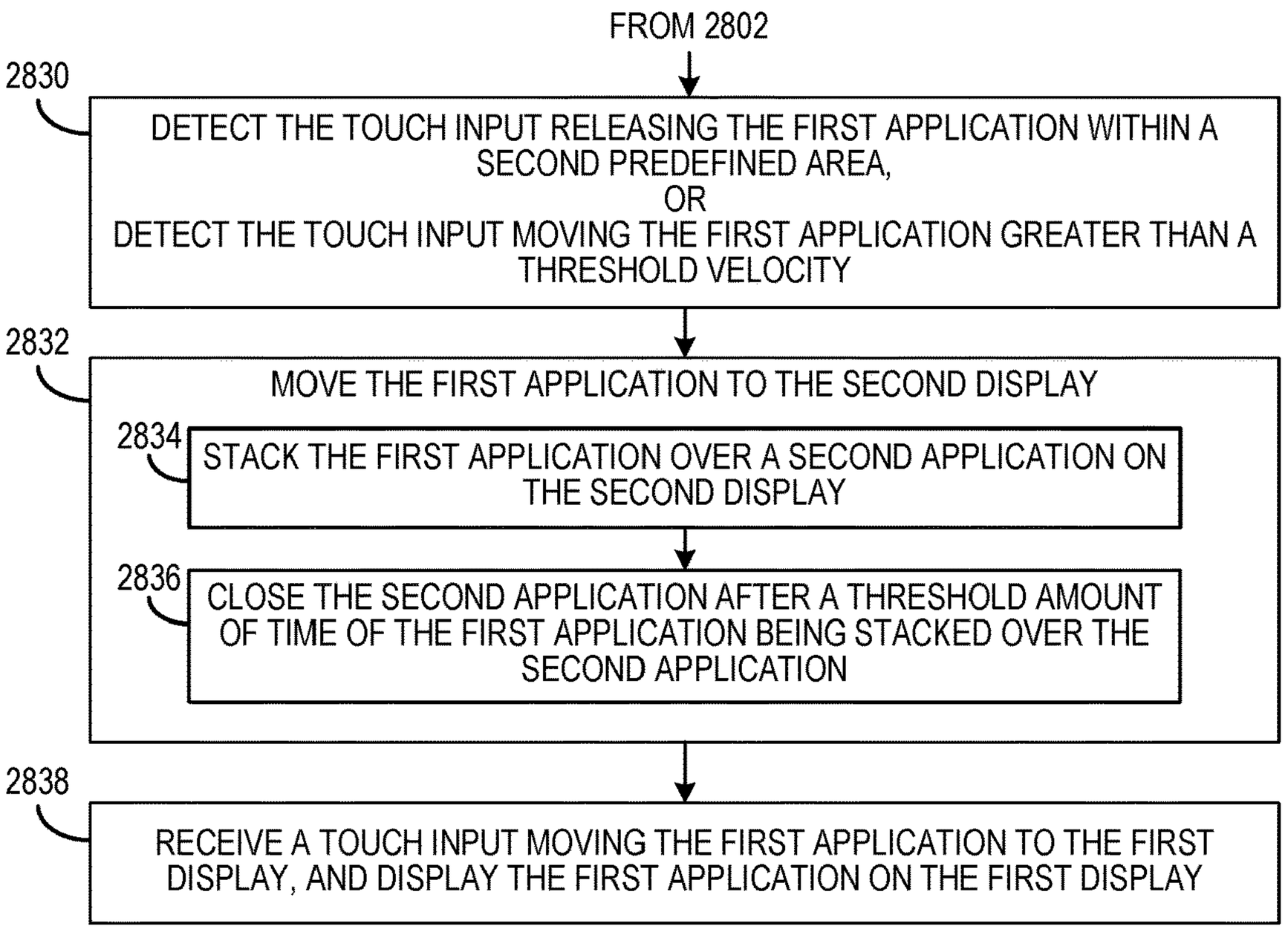

FIG. 28C

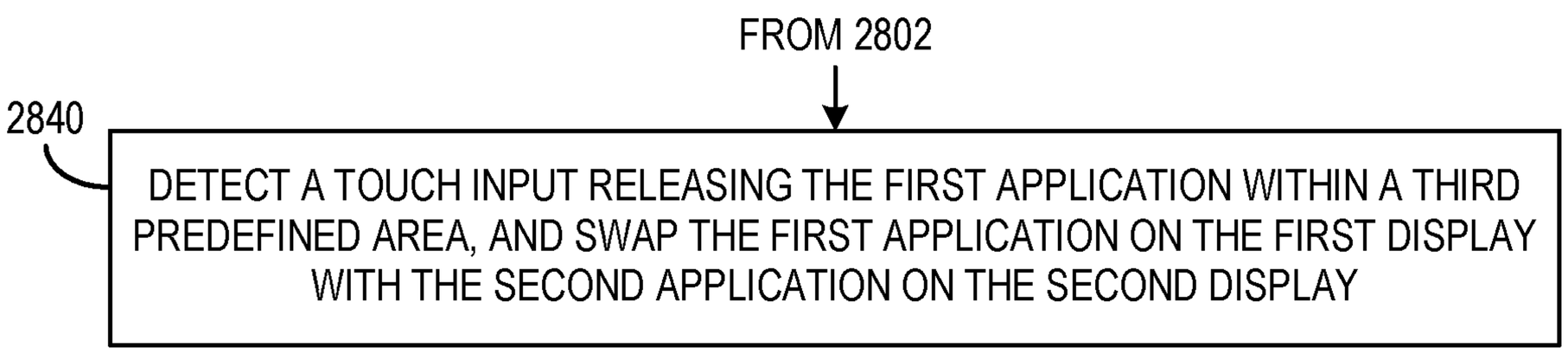

FIG. 28D

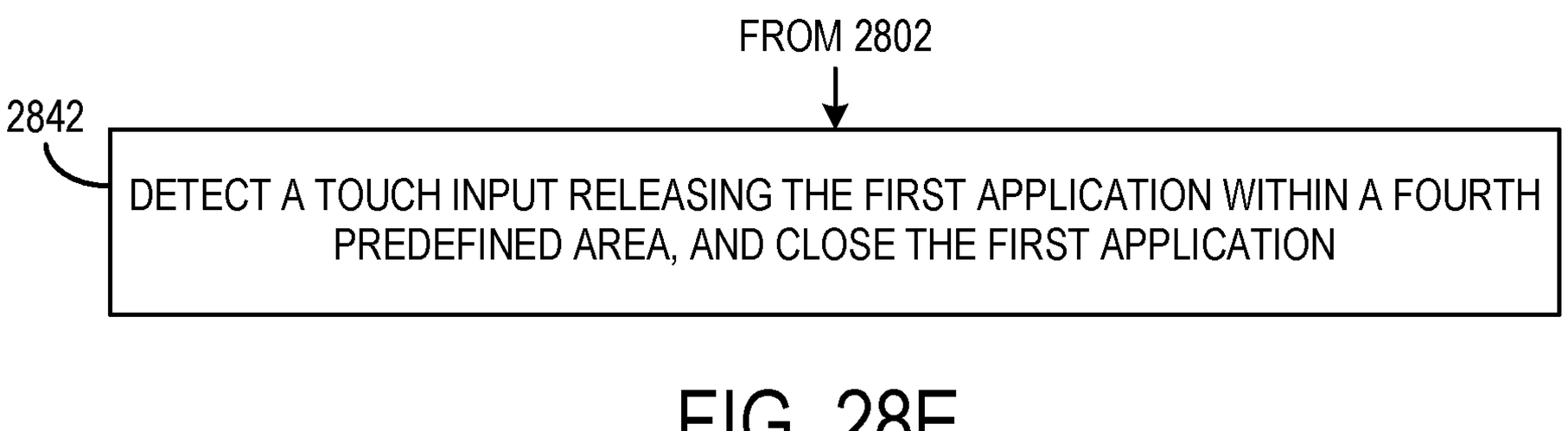

FIG. 28E

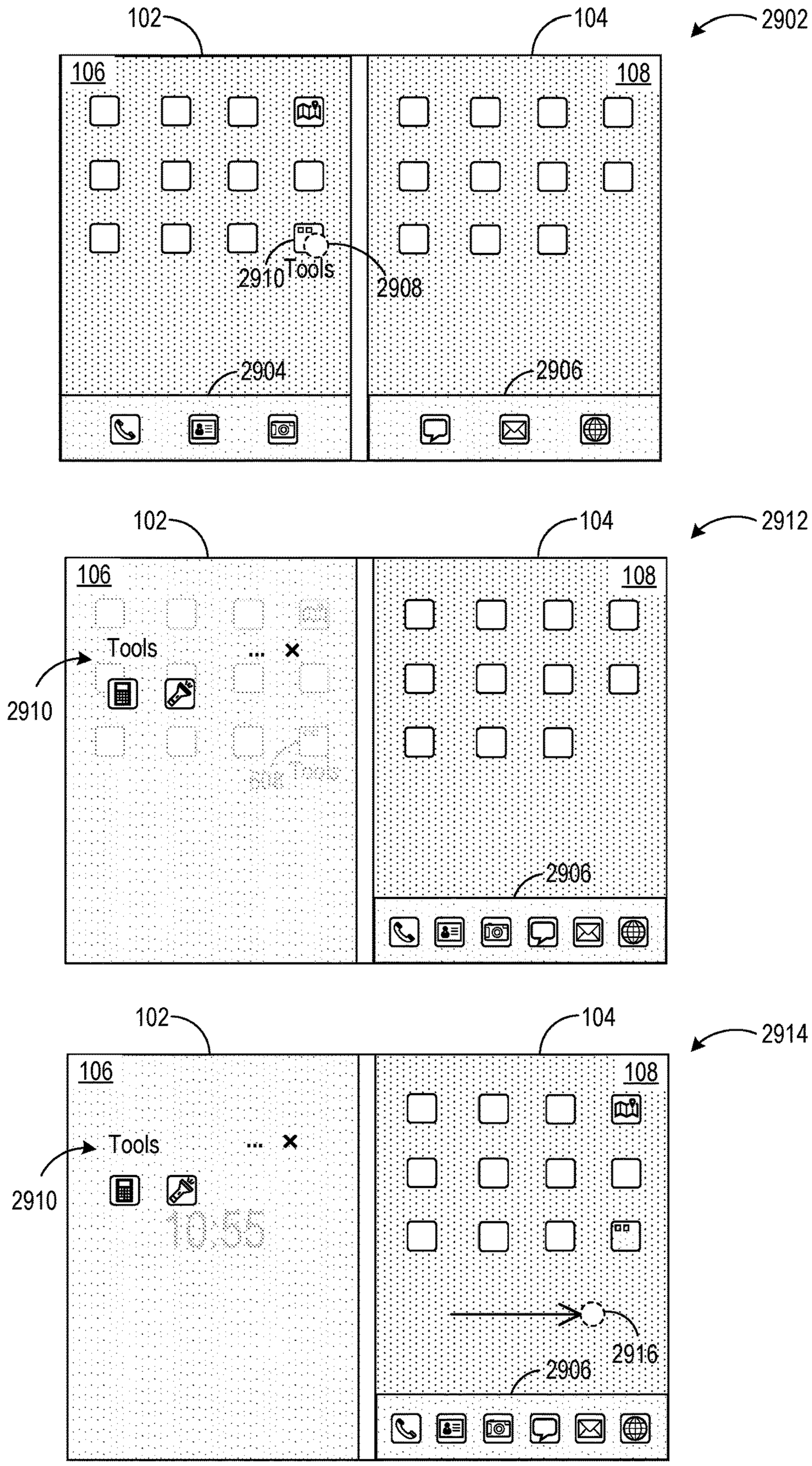
102
104
2902
106
108
2910
Tools
2908
2904
2906
102
104
2912
106
108
Tools
2910
2906
102
104
2914
106
108
Tools
2910
2916
2906

FIG. 29A

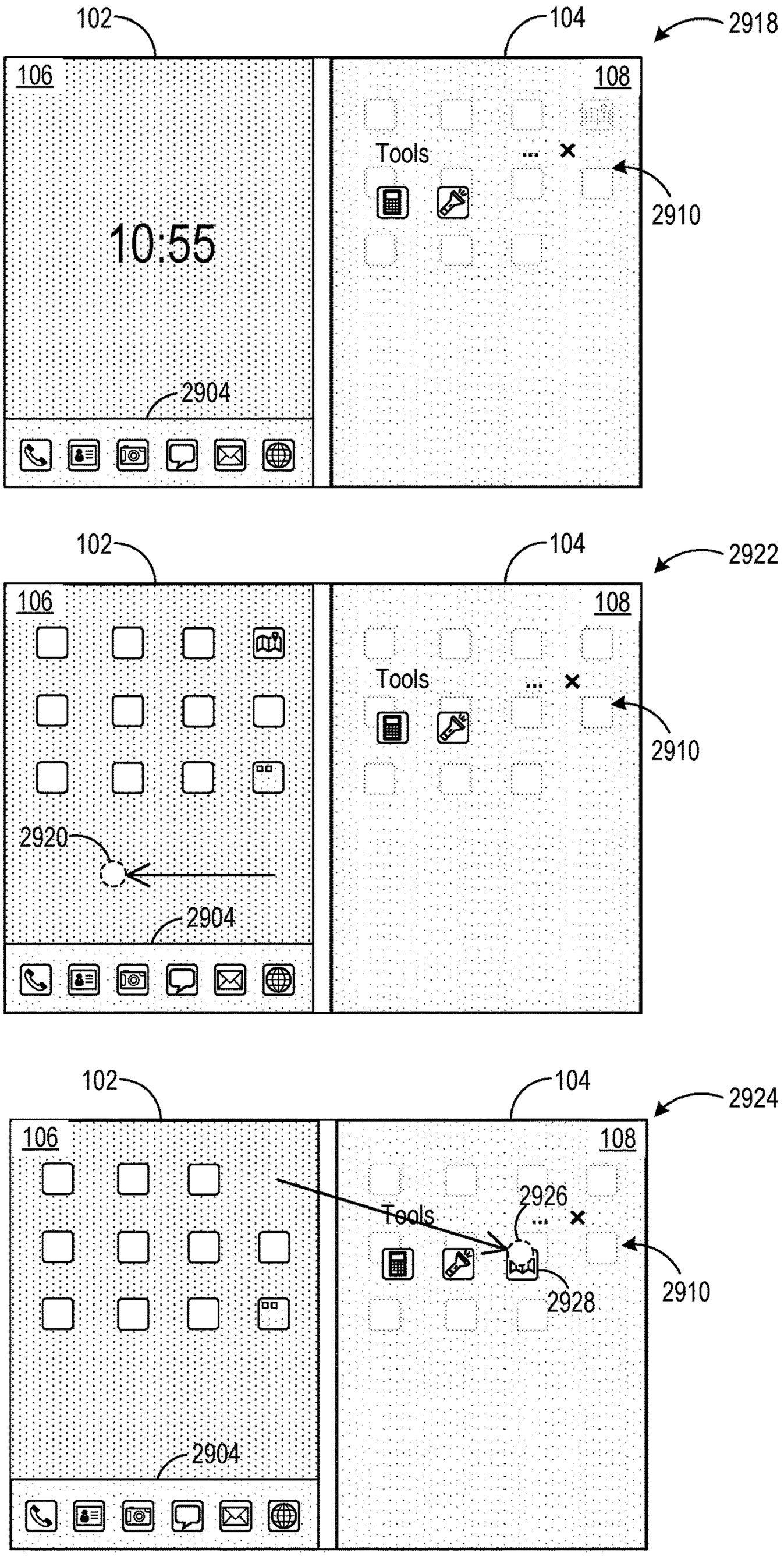
102
104
2918
106
108
Tools
10:55
2910
2904
2922
2920
2924
2926
2928

FIG. 29B

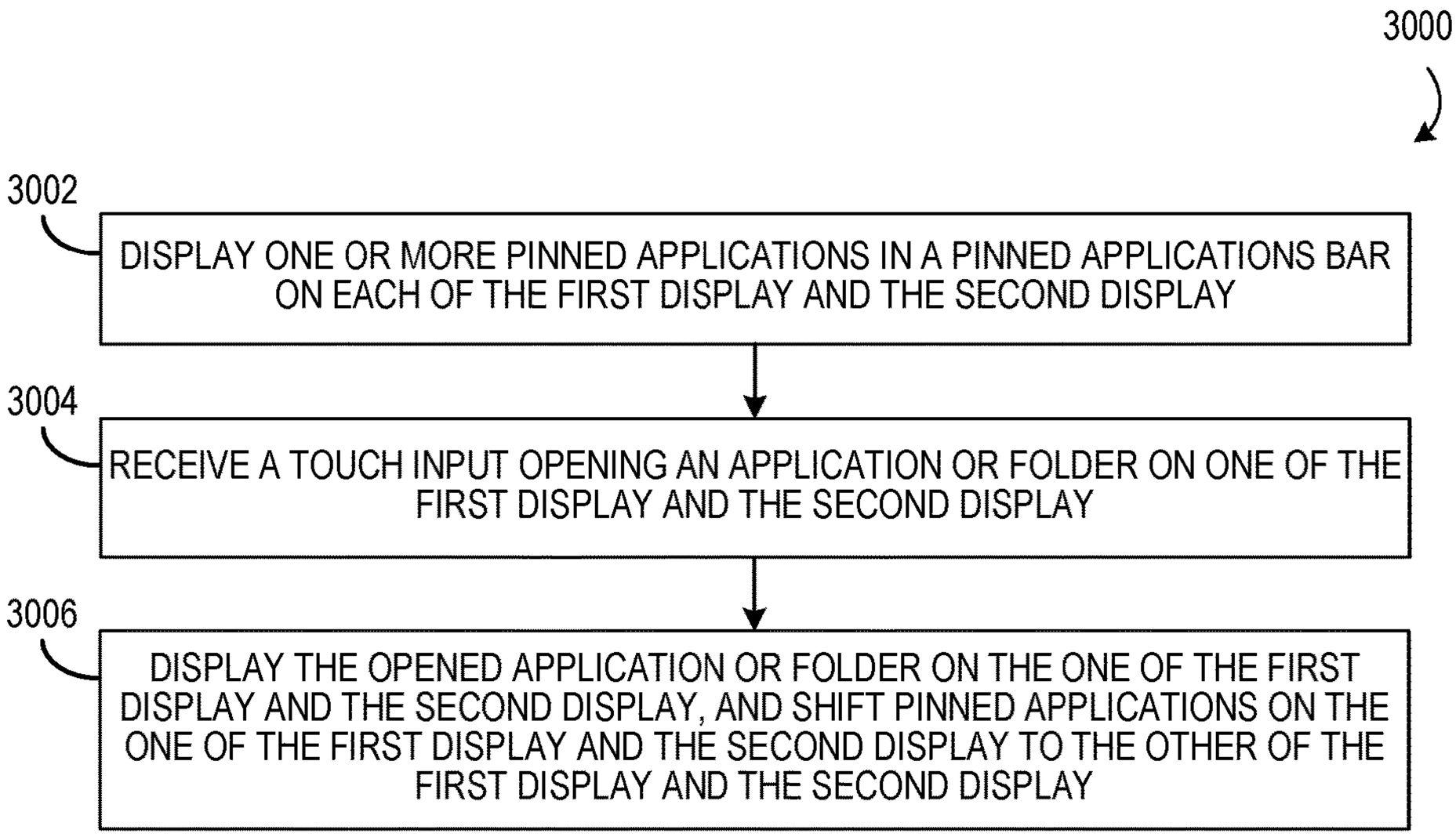
3000
3002
DISPLAY ONE OR MORE PINNED APPLICATIONS IN A PINNED APPLICATIONS BAR ON EACH OF THE FIRST DISPLAY AND THE SECOND DISPLAY
3004
RECEIVE A TOUCH INPUT OPENING AN APPLICATION OR FOLDER ON ONE OF THE FIRST DISPLAY AND THE SECOND DISPLAY
3006
DISPLAY THE OPENED APPLICATION OR FOLDER ON THE ONE OF THE FIRST DISPLAY AND THE SECOND DISPLAY, AND SHIFT PINNED APPLICATIONS ON THE ONE OF THE FIRST DISPLAY AND THE SECOND DISPLAY TO THE OTHER OF THE FIRST DISPLAY AND THE SECOND DISPLAY

FIG. 30

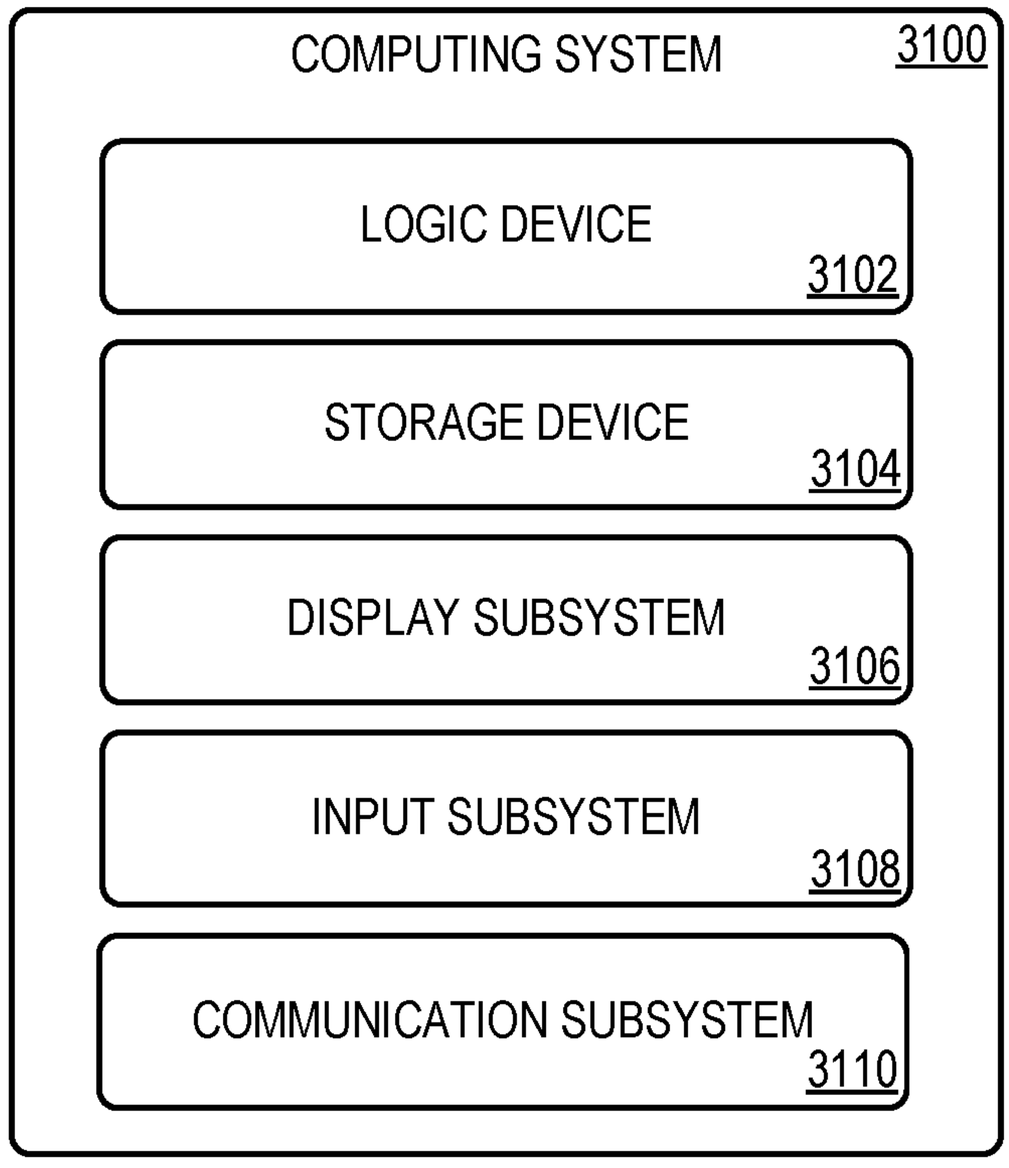
COMPUTING SYSTEM
3100
LOGIC DEVICE
3102
STORAGE DEVICE
3104
DISPLAY SUBSYSTEM
3106
INPUT SUBSYSTEM
3108
COMMUNICATION SUBSYSTEM
3110

FIG. 31

MOVING APPLICATIONS ON MULTI-SCREEN COMPUTING DEVICE

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims priority to U.S. Provisional Patent Application Ser. No. 62/909,191, filed Oct. 1, 2019, the entirety of which is hereby incorporated herein by reference for all purposes.

BACKGROUND

Some mobile electronic devices, such as smart phones and tablets, have a monolithic handheld form in which a display occupies substantially an entire front side of the device. Other devices, such as laptop computers, include a hinge that connects a display to other hardware, such as a keyboard and cursor controller (e.g. a track pad).

SUMMARY

Examples are disclosed that relate to operating a user interface of a multi-screen computing device. One example provides a computing device, comprising a first portion comprising a first display and a first touch sensor, and a second portion comprising a second display and a second touch sensor, the second portion connected to the first portion via a hinge, the hinge defining a seam between the first display and the second display. The computing device is configured to receive a touch input at the first display moving an application that is currently displayed on the first display and not on the second display toward the second display, detect the touch input releasing the application within a predetermined area, span the application across the first display and the second display such that a portion of application content is hidden behind the seam, receive a touch input moving the spanned application, and move the spanned application in a direction of the touch input to reveal at least a portion of the application content hidden behind the seam.

Another example provides a computing device, comprising a first portion comprising a first display and a first touch sensor, a second portion comprising a second display and a second touch sensor, the second portion connected to the first portion via a hinge, the hinge defining a seam between the first display and the second display, a logic device, and a storage device holding instructions executable by the logic machine. The instructions are executable to receive a touch input at the first display moving an application from the first display toward the second display, when the touch input releases the application within a first predefined area, to move the application to the second display, and when the touch input releases the application within a second predetermined area, to span the application by displaying the application across the first display and the second display.

Another example provides a method enacted on a computing device, the computing device comprising a first portion comprising a first display and a first touch sensor, and a second portion comprising a second display and a second touch sensor, the second portion connected to the first portion via a hinge. The method comprises displaying a first application on the first display, displaying a second application on the second display, receiving a touch input at the first display moving the first application toward the second display, detecting the touch input releasing the application within a predetermined area, and stacking the first application over the second application on the second display based at least upon the touch input releasing the application within the predetermined area.

This Summary is provided to introduce a selection of concepts in a simplified form that are further described below in the Detailed Description. This Summary is not intended to identify key features or essential features of the claimed subject matter, nor is it intended to be used to limit the scope of the claimed subject matter. Furthermore, the claimed subject matter is not limited to implementations that solve any or all disadvantages noted in any part of this disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** shows an example multi-screen computing device.

FIGS. **2-5** show example poses for a dual-screen computing device.

FIGS. **6**A and **6**B show an example spanning of an application and an example revealing of content of the spanned application that is hidden by a hinge.

FIGS. **7-9** illustrate an example scaling of an application in response to a user touch input dragging the application.

FIG. **10** shows a plot of an example vertical movement of an application as a function of touch position in a Y direction.

FIG. **11** shows a plot of an example application scaling as a function of touch position in a Y direction.

FIGS. **12** and **13** show example hint images displayed based on touch inputs moving an application from one display to another display.

FIGS. **14-17** show example hint images displayed based on touch inputs crossing various threshold distances.

FIG. **18** shows an example hint image displayed in response to a touch input for stacking applications.

FIG. **19** shows an example hint image displayed in response to a touch input for swapping applications.

FIG. **20** shows an example user interface while stacking an application and then unstacking the application within a threshold time.

FIG. **21** shows an example user interface depicting launching a new task from a link in an application while another application is open on another display.

FIG. **22** shows an example user interface depicting spanning of an application over another application, and then contracting the application, thereby restoring the application beneath the spanned application.

FIG. **23** shows an example user interface depicting spanning an application when another application is open on another display, and contracting the spanned application to either display, where a swap occurs if the spanned application is contracted to the other display.

FIG. **24** shows an example user interface depicting spanning an application when two other applications are stacked on another display, and contracting the spanned application to either display, where a swap occurs if the spanned application is contracted to the other display.

FIG. **25** shows an example user interface depicting spanning and contracting of an application when a second application is stacked behind the application, and a third application is open on another screen.

FIG. **26** shows an example user interface depicting spanning and contracting of an application when a second application is stacked behind the application, and two other applications are stacked on another screen.

FIG. **27** shows an example method of operating a dual screen computing device.

FIGS. **28**A-**28**E show other example methods of operating a dual screen computing device.

FIGS. **29**A-**29**B show an example user interface depicting interactions with an applications folder, wherein pinned applications automatically move based on the interactions with the applications folder.

FIG. **30** shows another example method of operating a dual screen computing device.

FIG. **31** shows a block diagram of an example computing system.

DETAILED DESCRIPTION

The disclosed examples relate to a computing device having a multi-screen configuration. FIG. **1** shows an example multi-screen computing device in the form of a dual-screen computing device **100**. The computing device **100** includes a first portion **102** and a second portion **104** that respectively include a first display **106** and a second display **108**. A hinge **110** arranged between the first and second portions **102** and **104** allows the relative pose between the portions and their displays to be adjusted. The computing device **100** may be configured to determine the relative pose between the first and second portions **102** and **104** (e.g. via motion sensor data from one or more motion sensors in each portion), and adjust a function of the computing device based on the relative pose.

Each of the first display **106** and the second display **108** may be a touch-sensitive display having a touch sensor. The touch sensor(s) may be configured to sense multiple sources of touch input, such as a digit of a user and a stylus manipulated by the user, and may sense multiple concurrent touches. The computing device **100** may assume any suitable form, including but not limited to various mobile devices (e.g., foldable smart phone, tablet, or laptop).

The first portion **102** includes a first three-dimensional pose sensor system **114** configured to provide output indicative of a three-dimensional pose of the first portion **102**, and the second portion **104** includes a second three-dimensional pose sensor system **116** configured to provide output indicative of a three-dimensional pose of the second portion **104**. In some examples, the first and second pose systems **114** and **116** each includes an accelerometer and a gyroscope, and optionally a magnetometer. The output produced by the first and second pose systems **114** and **116** may be used to determine a three-dimensional pose of first and second portions **102** and **104**, respectively. In other examples, any other suitable sensor or sensors may be used to sense the relative orientations of the displays, such as an optical or mechanical encoder incorporated into the hinge.

FIGS. **2-5** show various example display poses for the dual-screen computing device **100**. More specifically, FIG. **2** shows a single portrait pose (in which either display **106** or **108** may face the user), FIG. **3** shows a double portrait pose, FIG. **4** shows a single landscape pose (in which either display **106** or **108** may face the user), and FIG. **5** shows a double landscape pose. Depending on a pose of the computing device **100**, a user interface of the computing device **100** may be configured to operate in a certain manner and/or respond to touch inputs differently. For example, in FIG. **2** and FIG. **4**, the second portion **104** may be folded via the hinge **110** behind the first portion **102**, or vice versa. From the perspective of a user of the computing device **100**, when the second display is folded behind the first portion, the second display **108** may be imperceptible. As such, the computing device **100** may render graphical content that was previously displayed across both the first display **106** and the second display **108** fully onto the first display **106**, may cease displaying images on the second display **108**, and/or may also cease receiving touch inputs on the second display **108**. Various examples of operating a user interface and responding to touch inputs based on the pose of the computing device are further described below.

In some examples, a touch input may span an application across both a first display and a second display of a dual-screen device. FIGS. **6**A and **6**B show an example user interface displayed when spanning an application **600** across the first display **106** and the second display **108** of the first portion **102** and the second portion **104** of the dual-screen device **100**. First, the user interface at **602** shows application **600** open on the second display **108** of the second portion **104**, while the first display **106** on the first portion **102** is unoccupied by any applications. At **604**, the user interface shows that a touch input **606** has dragged the application **600** from the second display **604** toward the first display **602**. The touch input **606** may originate at a location along an application navigation bar **608** that is displayed at the bottom of the application **600**. The application navigation bar **608** may be configured to receive user inputs related to moving, dismissing, or otherwise manipulating the application **600**. The touch input **606** may release the application **600** when the application **600** is in a predetermined area, e.g. within a threshold distance from a seam **610** in between the two displays (as defined by the hinge **110** that connects the two device portions). Example predetermined areas for triggering certain user interface actions are discussed in more detail in regard to FIGS. **12-17**.

The user interface at **612** shows the application **600** spanned across both displays in response to the touch input releasing the application **600**. A mask may be applied to a rendering of the application in a location corresponding to the seam **610** when the application is spanned. Such masking may help the display of the spanned application (and also application windows moving across the seam) to appear more natural, as opposed to splitting the full image between the two displays. However, such masking also causes a small area of the displayed application to be unviewable. As such, a user may desire to reveal the content being blocked by the seam. FIG. **6**B at **614** and **616** show example interactions in which a user moves the application **600** (e.g. by touching and dragging) to reveal content hidden by the seam **610**. Any suitable touch inputs may trigger offsetting of the application to reveal content behind the seam **610**. As examples, a touch input may swipe, touch and drag, or perform a multi-finger gesture to the left or right from the seam, from a seam corner, etc. in double portrait mode. The same touch inputs may apply except in up or down directions from the seam in double landscape mode. At **614**, the user interface shows a touch input moving the application toward the left, and at **616**, the user interface shows a touch input moving the application toward the right. The spanned application may thereby be moved in a direction of the touch input to reveal at least a portion of the application content hidden behind the seam. In either example, a user may then move the application back to the original spanned mode shown at **612**, such as by tapping a revealed arrow user interface control **618** or **620** (shown at **614** and **616**), or by dragging and releasing the application back toward the seam. In other examples, such masking may not be applied, and instead the application may be divided into two portions that together make up the entire image. In yet other examples, such a seam between multiple displays may not be present, or a seam may also be configured to display content (e.g. via a flexible display over the hinge).

In some examples, a touch input may move an application while scaling the application simultaneously. FIGS. **7-9** illustrate an example of the scaling of a displayed application in response to a user touch input dragging the application. As shown, an origin of the scaling of the application may be set dynamically by horizontal touch position. For example, FIG. **7** shows a touch input **700** that starts at a right bottom corner of the application, FIG. **8** shows a touch input **800** that starts at a middle of the bottom of the application, and FIG. **9** shows a touch input **900** that starts at a left bottom corner of the application. In these examples, the scaling decreases based upon a vertical movement distance from the bottom of the display, and an origin of the movement is based upon the initial touch location of the touch input. The dynamic positioning of the origin of scaling may help to create the effect that the application follows the user's finger or stylus. The automatic scaling that occurs with movement of an application may help to better indicate to the user that the application is currently being moved while keeping the content of the application visible. Further, once released, expansion of the application back to its original size may also help to better indicate to the user that the application is no longer being moved by user input. Automatic scaling when moving an application may further help provide a more seamless transition of the application to a recent applications list or task switcher for switching between applications, as examples. For example, a preview for a recent applications list may be triggered when a gesture velocity for moving application drops to within a threshold velocity close to zero.

In some examples, an application may be moved in response to a horizontal movement and scaled in response to a vertical movement in portrait poses, and moved in response to a vertical movement and scaled in response to a horizontal movement in landscape poses. Further, the ratio of movement of the touch input to movement of the application on the user interface may change as a function of touch position. FIG. **10** shows a plot of an example vertical movement of an application on a display as a function of touch position in a Y direction when the display device is in a portrait pose. In this example, the position of an application follows a user's touch in a 1:1 ratio from a Y position of pixel 720 to pixel 400. Next, from a Y of touch from pixels 400 to 100, the change in Y position of the application compared to the change in touch location varies at a ratio of less than 1:1 from pixels 400 to 200. From Y of touch at pixels 100 to 0, the Y position of the application versus the touch position linearly varies at even a lesser ratio. In other examples, any other suitable mapping of touch movement to application movement may be used.

Likewise, the application scaling also may change as a function of touch position. FIG. **11** shows a plot of an example application scaling as a function of touch position in a Y direction. From Y of touch at pixels 720 to 400, the application may scale linearly at a first rate from 100% to 30% scale; from Y of touch at pixels 400 to 300, the application may scale linearly, but at a lesser rate, from 30% to 20% scale; and from Y of touch less than 300, the scale of the application may remain at 20%, thus not decreasing further. In the depicted example, movement of the application in a horizontal direction while in a portrait mode may follow the user's touch in a 1:1 ratio at all positions of X, and horizontal movement may not cause the application to scale, as an example. Movement of an application in a landscape mode also may display movement rate and/or scaling adjustments.

In double portrait and double landscape poses, movement of the applications from one display to the other display may be accompanied by hint images that are displayed to indicate how an application may move or behave based on the touch input. FIGS. **12** and **13** show example hint images **1200** and **1300** that may be displayed while moving an application in a double portrait pose and a double landscape pose, respectively. The illustrated example hint images indicate that if a touch input currently dragging the application were to be released at the current location, then the application would snap to or move to the display on which hint image is displayed.

FIGS. **14-17** show example hint images displayed based on touch inputs moving an application to within example threshold distances. In these figures, a transition zone **14** occupies a portion of the first display, and a portion of the second display. FIG. **14** illustrates an example in which a touch input drags an application from the second display toward the first display. In this figure, a first fraction **144** of the application, as defined from a left edge of the application to example line A, has not passed a first boundary **145** of the transition zone **14**, and no hint images are yet displayed, indicating that if the touch input were to release the application at that position, the application would be displayed again at the original position without any movement.

FIG. **15** shows the application having been moved sufficiently far such that the first fraction **144** of the application has passed the first boundary **145** of the transition zone **14**. In response, a hint image is displayed on the first display, indicating that the application will move to the first display upon release. FIG. **16** shows that the application has been moved so that a second, larger fraction **146** of the application, as defined from a left edge of the application to example line B, passes the first boundary **145** of the transition zone **14**, and in response a hint image is displayed spanning both displays, indicating that the application will span across both displays upon release. FIG. **17** shows that the application has been moved so that the second, larger fraction **146** of the application passes a second boundary **147** of the transition zone **14**, and in response a hint image is displayed on the first display, indicating that the application will move to the first display upon release. As such, there may be more than one predetermined area to which an application may be moved to trigger a same action.

FIG. **18** shows an example hint image displayed in response to a touch input moving an application to a display currently occupied by another application. In this example, a touch input moves the application from the second display toward the first display, but the first display is already occupied by another application. Upon dragging the application a certain threshold distance (such as those shown in FIG. **15** and FIG. **17**) or to a certain predetermined area, the other application on the left may slightly shrink and become greyed out as a hint image indicating that the dragged application would stack on top of the other application upon release and potentially cause the other application to close in some examples.

FIG. **19** shows an example hint image displayed in response to a touch input to swap applications. Here, the application has been dragged such that the first portion **144** of the application has passed an example swapping threshold line labeled as line C. Alternatively, the application may be dragged such that a far edge **1902** of the application passes the first boundary **145** into the transition zone **14**. In response to either occurrence, a hint image is displayed showing the second application on the left at a smaller scale, and further showing the second application as a greyed out

image on the second display, indicating that the application on the right will swap with the application on the left upon release. It will be understood that in some examples, hint images may not be displayed, but the same actions upon release within the predetermined areas may be applied regardless of whether hint images are displayed. Further, other suitable hint images may be used in other examples.

As mentioned above, in some examples, when a first application is moved from a first display to a second display that is already occupied by a second application, the first application is stacked on top of the second application. In some such examples, the second application may remain behind the first application indefinitely in a suspended state, until the first application is either moved away or dismissed. In other such examples, the second application may be dismissed automatically. In yet other examples, the second application may remain stacked behind the first application for a predetermined threshold amount of time, after which the second application may be dismissed and may then be accessible from a recent applications list. Within that threshold amount of time, a user may undo the stacking in order to reveal and resume the second application again. FIG. **20** shows an example user interface while stacking an application and then unstacking the application within a threshold time. At **2002**, Application **1** is on the left display, and Application **2** is on the right display. At **2004**, a touch input moves Application **2** toward the left display onto Application **1**, and Application **1** is shown smaller and transparent, as an example hint image indicating the stacking and possible application dismissal At **2006**, Application **2** has been stacked on top of Application **1**. However, before a threshold amount of time has passed, a touch input moves Application **2** back toward the right display, as shown at **2008**, thereby revealing Application **1** before it is dismissed. After the threshold amount of time, the dismissed application may be resumed again from a recent applications list, for example. Any suitable threshold time may be used. In some examples, the threshold time may be between five and twenty seconds, and may be ten seconds in a more specific example. Further, in some examples, an application that has become stacked underneath another application may instead (either immediately or after a predetermined threshold of time) be automatically transferred to a recent applications list for retrieval by the user.

In some examples, a user may trigger the launch of a new application from a currently open application, or a new instance of the same application. When in double portrait or double landscape mode, the new task may automatically be launched from the first application for display on the display opposite the first application, if that display is unoccupied.

In some instances, the user may attempt to launch a new task from a currently opened application when the opposite display is already occupied. FIG. **21** shows an example user interface depicting launching a new task from a link in an application while another application is open on another display. At **2102**, the left display is occupied by Application **1** which contains a link, and the right display is occupied by Application **2**. At **2104**, the user clicks on the link, which launches a new application, Application **3**. Because the adjacent display is occupied, the new Application **3** opens on the same display as Application **1**, stacking over Application **1** and suspending Application **1**, as shown at **2106**. Application **1** may be displayed as if it is receding and/or shrinking as Application **3** launches and expands to cover the left display. At **2108**, Application **3** has been stacked on top of Application **1**. In this instance, the stacking may not result in the automatic dismissal of Application **1**. Application **1** may be restored, for example, by user retrieval from a recent applications list, as mentioned above, or by a user touch input dismissing or moving Application **3** to the adjacent display.

Similarly, moving and spanning applications may behave differently depending on whether the display(s) are already occupied. FIGS. **22-26** show various examples of spanning, stacking, swapping, and dismissal of applications in response to movements of one application when one or more display(s) are already occupied by one or more other applications. FIG. **22** shows an example user interface depicting spanning of an application over another application and then contracting of the spanned application, thereby restoring the application beneath the spanned application. At **2202**, Application **1** is displayed on the first display, and Application **2** is displayed on the second display. At **2204**, a user touch input moves Application **1** toward the seam, and releases to span Application **1** across both displays, stacking Application **1** over Application **2** on the second display, as shown at **2206**. At **2208**, a user touch input contracts Application **1** and moves Application **1** back to the first display. At **2210**, Application **2** is revealed and restored.

FIG. **23** shows spanning and contracting an application when another application is open on another display, and also shows different outcomes as a result of contracting Application **1** to different screens. At **2302**, Application **1** is displayed on the first display, and Application **2** is displayed on the second display. At **2304**, Application **1** is shown spanned across both displays, e.g. after a touch input dragging and releasing Application **1** near the seam, thereby stacking at least a portion of Application **1** over Application **2** on the second display. The user may contract Application **1** back toward the first display, restoring Application **2** on the second display, as shown at **2306**. Alternatively, the user may contract Application **1** toward the second display. Rather than stacking Application **1** over Application **2**, Application **1** may be automatically swapped with Application **2**, such that Application **2** is displayed on the first display, as shown at **2308**. In other examples, swapping may be triggered when contracting a spanned application by moving the spanned application to a "swap threshold area" within an outer edge of the display, e.g. as illustrated in FIG. **19**. If the contracted application is released outside of the swap threshold area, it may result in permanent stacking.

FIG. **24** shows spanning and contracting of an application when two other applications are stacked on another display. At **2402**, Application **1** is displayed on the first display, and Application **2** is displayed on the second display while stacked over Application **3**. At **2404**, a user touch input moves Application toward the seam, and upon release, Application **1** spans across both displays, stacking over both Application **2** and Application **3** on the second display, as shown at **2406**. At **2408**, a user input contracts spanned Application **1**, but depending on which side Application **1** is contracted to, the result is different. At **2410**, Application **1** is shown contracted to the first display, restoring the original arrangement. However, as shown at **2412**, when the spanned application is contracted at the second display where the stacked applications were originally located, the stacked applications swap locations with the spanned application. As mentioned above, in other examples, swapping may be triggered when contracting the spanned application to a "swap threshold area" within an outer edge of the display, and stacking may result when the spanned application is released outside of the swap threshold area.

FIG. **25** shows spanning and contracting an application when a second application is stacked behind the application,

and a third application is open on another display. At **2502**, Application **1** is stacked over Application **2** on the first display, and Application **3** is displayed on the second display. At **2504**, a user touch input moves Application **1** toward the seam. Application **1** is thereby spanned across both displays, stacking over both Application **2** on the first display and Application **3** on the second display, as shown at **2506**. When the spanned application is contracted, at **2508**, the application may stack above either the second application or the third application, depending to which side the application is contracted. At **2510**, Application **1** is contracted to the first display, restoring Application **3** on the second display. At **2512**, Application **1** is contracted to the second display, revealing Application **2** on the first display while Application **1** is stacked over Application **3** on the second display.

FIG. **26** shows spanning and contracting an application when a second application is stacked behind the application, and two other applications are stacked on another display. At **2602**, Application **1** is stacked over Application **2** on the first display, and Application **3** is stacked over Application **4** on the second display. At **2604**, a user touch input moves Application **1** toward the seam. When Application **1** is spanned, as shown at **2606**, Application **1** remains stacked over Application **2** on the left display, and further stacks over Application **3** and Application **4** on the right display. A user touch input then contracts Application **1**, at **2608**. When the user contracts Application **1** back to the left display, at **2610**, Application **1** stacks back over Application **2** on the left display, while Application **3** and Application **4** remain stacked on the right display. In contrast, when the user contracts Application **1** on the right display, as shown at **2612**, Application **1** stacks over Application **3**, dismissing Application **4**. This may occur, for example, if a setting dictates that only two applications may be stacked on a display at any time (other than when spanning). In other examples, more than two applications may be stacked at a time per display.

FIG. **27** shows an example method **2700** of operating a dual screen computing device. Method **2700** comprises, at **2702**, displaying a first application a first display, and at **2704**, displaying a second application at a second display of the dual screen computing device. Method **2700** further includes, at **2706**, receiving a touch input at the first display opening a third application while the first application is displayed on the first display, e.g. from a link within the first application. At **2708**, method **2700** comprises displaying the third application as being stacked over the first application. At **2710**, method **2700** includes receiving a touch input closing the third application, and in response, closing the third application and displaying the first application on the first display. The computing device may open new applications from currently running applications based on whether any application(s) are already open on either of the first display or the second display.

FIGS. **28**A-E shows another example method **2800** of operating a dual-screen computing device, and more particularly illustrate various methods of displaying an application based upon the application being moved to different predetermined areas of the displays. Method **2800** includes, at **2802**, receiving a touch input at the first display dragging the first application from the first display toward the second display. In some examples, this may include receiving the touch input at an application navigation bar (e.g. displayed at a bottom, side, or other suitable location on the display, as illustrated in FIG. **6**). While the first application is being dragged, a size of the first application may be scaled based at least in part on a direction of movement of the touch input, at **2804**. At **2806**, method **2800** includes displaying a hint indicating where the application will move based at least in part on the touch input dragging the first application to within a predetermined area. For example, hint images indicating that the first application will be spanned, moved, swapped, or stacked may be displayed indicating a result of the movement of the first application based on the touch input dragging the first application if the touch input is completed.

From **2802**, method **2800** may continue to **2808** of FIG. **28**A, or to FIG. **28**C, **28**D, or **28**E, which illustrate different outcomes depending on where the first application is released.

For example, method **2800** may include, at **2808**, detecting a touch input releasing the first application within a first predetermined area. This may include, at **2810**, detecting the touch input releasing the first application within a threshold distance of a seam of the computing device in a hinge region of the device. In other examples, such a seam may not be present. At **2812**, method **2800** includes spanning the application across the first display and the second display, such that a portion of application content is hidden behind the seam. Spanning may include, at **2824**, applying a mask to a rendering of the first application in a location corresponding to a seam in between the first display and the second display. In other examples, an image of the first application may be divided such that the full image is split between the two displays.

Further, spanning may include, at **2816**, stacking a portion of the spanned, first application over a second application on the second display, where a second application is open on the second display.

Continuing with FIG. **28**B, method **2800** further includes, at **2818**, receiving a touch input moving the spanned first application. Method **2800** also includes, at **2820**, moving the spanned application in a direction of the touch input to reveal at least a portion of the application content hidden behind the seam. Further, method **2800** includes, at **2822**, receiving a touch input moving and contracting the spanned application to either one of the first display and the second display, and displaying the first application on one of the first display and the second display based on the touch input. For example, a drag-and-release touch input or a fling gesture may contract the first application toward the first display, and the first application may be moved to the first display in response. In instances where the first application was stacked over the second application, moving the first application may reveal the second application, as indicated at **2824**. As another example, the touch input may contract the first application onto the second display, such that the first application remains stacked over the second application, as shown at **2826**, thereby potentially leading to the closing of the second application in some examples, e.g. immediately or after a threshold amount of time. As yet another example, the touch input may contract the first application onto the second display, such that the first application swaps positions with the second application, instead of stacking on top of the second application, as indicated at **2828**.

Where the touch input is released in a different area than the first predefined area, a different result may occur than spanning. For example, FIG. **28**C shows, at **2736**, detecting the touch input releasing the first application within a second predefined area. In response, as indicated at **2832**, the first application is moved to the second display, instead of being spanned across both displays. Such an action also may result from a fling gesture in which a touch input is moved from

one of the first and second display toward the other of the first and second display with a velocity greater than a threshold velocity, and/or an acceleration greater than a threshold acceleration, also as indicated at **2830**. Moving the first application to the second display may include, at **2834**, stacking the first application over a second application on the second display. In some examples, the computing device may close the second application after a threshold amount of time of the first application being stacked over the second application, as shown at **2836**. This may allow a user to move the stacked first application back to the first display to reveal the second application on the second display before the second application is closed. Thus, method **2800** further includes, at **2838**, receiving a touch input moving the first application back to the first display, and in response, displaying the first application on the first display. Where the first application was stacked over a second application and moved within a threshold amount of time, this also may include displaying the second application on the second display.

In another example response to the touch input received at **2802**, FIG. **28**D shows, at **2842**, detecting the touch input releasing the first application within a third predefined area, and swapping the first application on the first display with the second application on the second display. As yet another example response to the touch gesture of **2802**, FIG. **28**E shows, at **2842**, detecting the touch input releasing the first application within a fourth predefined area, and closing the first application in response. The touch input may drag-and-release the first application in any other suitable predetermined areas to trigger other corresponding actions, such as moving an application to a recent applications list, etc.

FIGS. **29**A-B shows an example user interface depicting interactions with an applications folder in a double portrait mode of the dual-screen device **100**. At **2902**, the user interface shows a pinned applications bar **2904** on the first display **106** of the first portion **102**, and a pinned applications bar **2906** on the second display **108** of the first portion **104**. The user interface at **2902** also shows a touch input **2908** tapping an applications folder **2910** on the first display **106** display. At **2912**, the applications folder **2910** is opened on the first display **106**. The open applications folder **2910** may be at least partially transparent, such that content behind it is still visible. Further, the pinned applications that were on the pinned applications bar **2904** on the first display **106** are shifted over to the pinned applications bar **2906** on the second display **108**. In some examples, the shifting may be animated so that a user views the transition of the pinned applications to the other display. It will be understood that shifting of the pinned applications may occur in any instance where an application or system component (e.g. a folder) occupies either screen in a dual-display mode. At **2914**, a touch input **2916** performed on the second display **108** drags from left to right on the second display **108**, which moves the items displayed behind the applications folder **2910** on the first display **106** to the second display **108**. At any time, a user may close the applications folder **2910**, e.g. by tapping an "X" icon shown in the folder.

Continuing with FIG. **29**B, at **2918**, the applications folder **2910** is opened on the second display **108**, such as after a touch input has moved the applications folder from the first display **106** to the second display **108**, or after touch inputs have closed the applications folder **2910** on the first display **106**, and reopened the applications folder **2910** on the second display **108**. The pinned applications that were previously on the pinned applications bar **2906** of the second display **108** are shifted to the pinned applications bar **2904** on the first display **106**. Similarly, a touch input **2920** may be performed from right to left to shift content behind the applications folder **2910** on the second display **108** to the first display **106**, as shown similarly at **2914**. At **2924**, while the applications folder **2910** is open, a touch input **2926** may move an application **2928** that is not currently in the applications folder **2910** into the folder **2910**. It will be understood that pinned applications may also shift in response to the opening of an application on one display, and is not limited to the opening of an applications folder. Such behavior may allow the pinned applications to remain visible to a user.

In some examples, when no application or system component (e.g., folder) is open on either first display **106** or second display **108**, a user may also shift the pinned applications that were on pinned applications bar **2904** on the first display **106** over to the pinned applications bar **2906** on the second display **108** through a right swipe/fling gesture, either within the pinned applications bar **2904** or a threshold area of pinned applications bar **2906**. Similarly, the user may perform a left swipe/fling gesture either on pinned applications bar **2906** or pinned applications bar **2904** to shift the pinned applications that were previously on pinned applications bar **2096** on the second display **108** over to pinned applications bar **2094** on the first display **106**. This gives the user the control to launch whichever pinned application on the preferred display. It will be understood that the above examples, including any other windowing gestures described above, also apply to double landscape poses as well, and the described gesture directions are relative.

FIG. **30** shows an example method **3000** of operating a dual screen computing device. Method **3000** includes, at **3002**, displaying one or more applications in a pinned applications bar on each of the first display and the second display. Method **3000** further includes, at **3004**, receiving a touch input opening an application or folder on one of the first display and the second display. In response, method **3000** includes, at **3006**, displaying the opened application or folder on the one of the first display and the second display, and shifting pinned applications on the one of the first display and second display to the other of the first display and the second display. For example, if a touch input opens an application on the first display, the pinned applications in the pinned applications bar on the first display may shift to the pinned applications bar of the second display. Likewise, if a touch input opens an application on the second display, the pinned applications in the pinned applications bar on the second display may shift to the pinned applications bar of the first display. It will be understood that this may also apply when opening an applications folder, as described in regard to FIGS. **29**A-B.

It will be understood that the various user interface examples described herein may apply to any suitable multiple display systems, including displays systems other than mobile phones, such as multi-monitor display systems for desktop computers, surface-mounted multi-displays, virtual and/or augmented reality display systems, head-up displays, projected display systems, etc. Furthermore, although described above in the context of touch inputs, it will be understood that any of the above touch inputs and gestures may also be input via a suitable input device, e.g. a mouse controlling a cursor.

In some embodiments, the methods and processes described herein may be tied to a computing system of one or more computing devices. In particular, such methods and processes may be implemented as a computer-application

program or service, an application-programming interface (API), a library, and/or other computer-program product.

FIG. **31** schematically shows a non-limiting embodiment of a computing system **3100** that can enact one or more of the methods and processes described above. Computing system **3100** is shown in simplified form. Computing system **3100** may embody the computer device **100** described above and illustrated in FIG. **1**. Computing system **3100** may take the form of one or more personal computers, server computers, tablet computers, home-entertainment computers, network computing devices, gaming devices, mobile computing devices, mobile communication devices (e.g., smart phone), and/or other computing devices, and wearable computing devices such as smart wristwatches and head mounted augmented reality devices.

Computing system **3100** includes a logic device **3102**, and a non-volatile storage device **3104**. Computing system **3100** may optionally include a display subsystem **3106**, input subsystem **3108**, communication subsystem **3110**, and/or other components not shown in FIG. **31**.

Logic device **3102** includes one or more physical devices configured to execute instructions. For example, the logic device **3102** may be configured to execute instructions that are part of one or more applications, programs, routines, libraries, objects, components, data structures, or other logical constructs. Such instructions may be implemented to perform a task, implement a data type, transform the state of one or more components, achieve a technical effect, or otherwise arrive at a desired result.

The logic device **3102** may include one or more physical processors (hardware) configured to execute software instructions. Additionally or alternatively, the logic device **3102** may include one or more hardware logic circuits or firmware devices configured to execute hardware-implemented logic or firmware instructions. Processors of the logic device **3102** may be single-core or multi-core, and the instructions executed thereon may be configured for sequential, parallel, and/or distributed processing. Individual components of the logic device **3102** optionally may be distributed among two or more separate devices, which may be remotely located and/or configured for coordinated processing. Aspects of the logic device **3102** may be virtualized and executed by remotely accessible, networked computing devices configured in a cloud-computing configuration. In such a case, these virtualized aspects are run on different physical logic processors of various different machines, it will be understood.

Storage device **3104** may be a non-volatile storage device. Non-volatile storage device **3104** includes one or more physical devices configured to hold instructions executable by the logic device **3102** to implement the methods and processes described herein. When such methods and processes are implemented, the state of non-volatile storage device **3104** may be transformed—e.g., to hold different data.

Non-volatile storage device **3104** may include physical devices that are removable and/or built-in. Non-volatile storage device **3104** may include optical memory (e.g., CD, DVD, HD-DVD, Blu-Ray Disc, etc.), semiconductor memory (e.g., ROM, EPROM, EEPROM, FLASH memory, etc.), and/or magnetic memory (e.g., hard-disk drive, floppy-disk drive, tape drive, MRAM, etc.), or other mass storage device technology. Non-volatile storage device **3104** may include nonvolatile, dynamic, static, read/write, read-only, sequential-access, location-addressable, file-addressable, and/or content-addressable devices. It will be appreciated that storage device **3104** is configured to hold instructions even when power is cut to the storage device **3104**.

In other examples, storage device **3104** may include volatile memory, which may include physical devices that include random access memory. Volatile memory is typically utilized by logic device **3102** to temporarily store information during processing of software instructions. It will be appreciated that volatile memory typically does not continue to store instructions when power is cut to the volatile memory.

Aspects of logic device **3102** and/or storage device **3104** may be integrated together into one or more hardware-logic components. Such hardware-logic components may include field-programmable gate arrays (FPGAs), program- and application-specific integrated circuits (PASIC/ASICs), program- and application-specific standard products (PSSP/ASSPs), system-on-a-chip (SOC), and complex programmable logic devices (CPLDs), for example.

When included, display subsystem **3106** may be used to present a visual representation of data held by storage device **3104**. The visual representation may take the form of a graphical user interface (GUI). As the herein described methods and processes change the data held by the non-volatile storage device, and thus transform the state of the non-volatile storage device, the state of display subsystem **3106** may likewise be transformed to visually represent changes in the underlying data. Display subsystem **3106** may include one or more display devices utilizing virtually any type of technology. Such display devices may be combined with logic device **3102**, volatile memory and/or non-volatile storage device **3104** in a shared enclosure, or such display devices may be peripheral display devices.

When included, input subsystem **3108** may comprise or interface with one or more user-input devices such as a keyboard, mouse, touch screen, or game controller. In some embodiments, the input subsystem may comprise or interface with selected natural user input (NUI) componentry. Such componentry may be integrated or peripheral, and the transduction and/or processing of input actions may be handled on- or off-board. Example NUI componentry may include a microphone for speech and/or voice recognition; an infrared, color, stereoscopic, and/or depth camera for machine vision and/or gesture recognition; a head tracker, eye tracker, accelerometer, and/or gyroscope for motion detection and/or intent recognition; as well as electric-field sensing componentry for assessing brain activity; and/or any other suitable sensor.

When included, communication subsystem **3110** may be configured to communicatively couple various computing devices described herein with each other, and with other devices. Communication subsystem **3110** may include wired and/or wireless communication devices compatible with one or more different communication protocols. As non-limiting examples, the communication subsystem may be configured for communication via a wireless telephone network, or a wired or wireless local- or wide-area network, such as a HDMI over Wi-Fi connection. In some embodiments, the communication subsystem may allow computing system **3100** to send and/or receive messages to and/or from other devices via a network such as the Internet.

Another example provides a computing device, comprising a first portion comprising a first display and a first touch sensor, and a second portion comprising a second display and a second touch sensor, the second portion connected to the first portion via a hinge, the hinge defining a seam between the first display and the second display. the computing device further includes a logic device, and a storage

device holding instructions executable by the logic device to receive a touch input at the first display moving an application that is currently displayed on the first display and not on the second display toward the second display, detect the touch input releasing the application within a predetermined area, span the application across the first display and the second display such that a portion of application content is hidden behind the seam, receive a touch input moving the spanned application, and move the spanned application in a direction of the touch input moving the spanned application to reveal at least a portion of the application content hidden behind the seam. The instructions may be additionally or alternatively executable to span the application across the first display and the second display by applying a mask to a rendering of the displayed application in a location corresponding to the seam. The instructions may be additionally or alternatively executable to receive a touch input moving the spanned application to one of the first display and the second display, and display the spanned application on one of the first display and the second display. The instructions may be additionally or alternatively executable to display one or more applications in a pinned applications bar on each of the first display and the second display, receive a touch input opening an applications folder on one of the first display and the second display, and in response, display the applications folder on the one of the first display and the second display, and shift applications on the one of the first display and the second display to the other of the first display and the second display. The predefined area may be a first predefined area, and the instructions may be additionally or alternatively executable to detect a touch input moving the application toward the second display and releasing the application within a second predefined area, and move the application to the second display. The application may be a first application, and the instructions may be additionally or alternatively executable to display a second application on the second display, upon detecting the touch input releasing the application within the second predefined area, stack the first application over the second application on the second display. The instructions may be additionally or alternatively executable to close the second application after a threshold amount of time of the first application being stacked over the second application. The application may be a first application, and the instructions may be additionally or alternatively executable to display a second application on the second display, detect a touch input releasing the application within a second predefined area, and swap the first application on the first display with the second application on the second display. The application may be a first application, and the instructions may be additionally or alternatively executable to display a second application on the second display, wherein spanning the first application across the first display and the second display comprises stacking a portion of the first application over the second application on the second display, receive a touch input contracting the first application, and display the first application on the first display, and display the second application on the second display. The predefined area may be a first predefined area, and the instructions may be additionally or alternatively executable to detect a touch input releasing the application within a second predefined area, and close the application. The instructions may be additionally or alternatively executable to detect a touch input comprising a fling gesture, and move the application to the second display. The instructions may be additionally or alternatively executable to scale a size of the application based at least in part on a direction of movement of the touch input. The instructions may be additionally or alternatively executable to, prior to detecting the touch input releasing the application, display a hint indicating that the application will span based at least in part on the touch input moving the application to within the predetermined area.

Another example provides a computing device, comprising a first portion comprising a first display and a first touch sensor, a second portion comprising a second display and a second touch sensor, the second portion connected to the first portion via a hinge, the hinge defining a seam between the first display and the second display, a logic device, and a storage device holding instructions executable by the logic machine to receive a touch input at the first display moving an application from the first display toward the second display, when the touch input releases the application within a first predefined area, move the application to the second display, and when the touch input releases the application within a second predetermined area, span the application by displaying the application across the first display and the second display. The application may be a first application, and the instructions may be additionally or alternatively executable to, display a second application on the second display, and when the user input releases the first application in a third predefined area, swap the first application on the first display with the second application on the second display by displaying the first application on the second display and displaying the second application on the first display. The application may be a first application, and the instructions may be additionally or alternatively executable to, display a second application on the second display, when the first application is displayed on the first display, receive a touch input at the first display opening a third application from the first application, and display the third application as being stacked over the first application. The instructions may be additionally or alternatively executable to receive a touch input closing the third application, and displaying the first application on the first display.

Another example provides a method enacted on a computing device, the computing device comprising a first portion comprising a first display and a first touch sensor, and a second portion comprising a second display and a second touch sensor, the second portion connected to the first portion via a hinge, the hinge defining a seam between the first display and the second display, the method comprising displaying a first application on the first display, displaying a second application on the second display, receiving a touch input at the first display moving the first application toward the second display, detecting the touch input releasing the application within a predetermined area, and stacking the first application over the second application on the second display based at least upon the touch input releasing the application within the predetermined area. The method may additionally or alternatively include receiving a touch input moving the first application to the first display, and in response, displaying the first application on the first display and displaying the second application on the second display. The method may additionally or alternatively include closing the second application after a threshold amount of time of the first application being stacked over the second application.

It will be understood that the configurations and/or approaches described herein are exemplary in nature, and that these specific embodiments or examples are not to be considered in a limiting sense, because numerous variations are possible. The specific routines or methods described herein may represent one or more of any number of processing strategies. As such, various acts illustrated and/or

described may be performed in the sequence illustrated and/or described, in other sequences, in parallel, or omitted. Likewise, the order of the above-described processes may be changed.

The subject matter of the present disclosure includes all novel and non-obvious combinations and sub-combinations of the various processes, systems and configurations, and other features, functions, acts, and/or properties disclosed herein, as well as any and all equivalents thereof.

The invention claimed is:

1. A computing device, comprising:

a first portion comprising a first display and a first touch sensor;

a second portion comprising a second display and a second touch sensor, the second portion connected to the first portion via a hinge;

a logic device; and

a storage device holding instructions executable by the logic device to

when the computing device is in a double portrait orientation, receive a first touch input at the first display moving an application that is currently displayed on the first display and not on the second display toward the second display,

display the application at a scale that decreases as the first touch input moves the application away from a lower edge of the first display,

based at least upon the first touch input releasing the application within a first predefined area, move the application to the second display and restore an original scale of the application, and

when the computing device is in a double landscape orientation, receive a second touch input at the first display moving the application that is currently displayed on the first display and not the second display toward the second display, and

display the application at a scale that decreases as the second touch input moves the application away from a side edge of the first display.

2. The computing device of claim **1**, wherein the instructions are executable to, based at least upon the first touch input being detected as releasing the application within a second predefined area different than the first predefined area, span the application across the first display and the second display.

3. The computing device of claim **2**, wherein the instructions are further executable to, after spanning the application, receive a touch input moving the application to one of the first display and the second display, and display the application on one of the first display and the second display.

4. The computing device of claim **1**, wherein the instructions are executable to display one or more pinned applications in a pinned applications bar on each of the first display and the second display, receive a touch input opening a selected application on one of the first display and the second display, and in response, display the opened application on the one of the first display and the second display, and shift pinned applications on the one of the first display and the second display to the other of the first display and the second display.

5. The computing device of claim **1**, wherein the instructions are further executable to, based at least upon the first touch input releasing the application within the first predefined area and the second display currently displaying a second application, stack the application on top of the second application.

6. The computing device of claim **1**, wherein the application is a first application,

and further comprising instructions executable to, based at least upon the first touch input releasing the application within a third predefined area and the second display currently displaying a second application, swap the application on the first display with the second application on the second display.

7. The computing device of claim **1**, wherein the instructions are further executable to detect a touch input releasing the application within a second predefined area, and in response, close the application.

8. The computing device of claim **1**, wherein the instructions are further executable to detect a touch input comprising a fling gesture, and based at least upon the application being displayed on the first display when the fling gesture is detected, move the application to the second display.

9. The computing device of claim **1**, wherein the instructions are executable to, prior to detecting the first touch input releasing the application, display a hint indicating that the application will move to the second display based at least in part on the touch input moving the application to within the first predefined area.

10. A computing device, comprising:

a first portion comprising a first display and a first touch sensor;

a second portion comprising a second display and a second touch sensor, the second portion connected to the first portion via a hinge, the hinge defining a seam between the first display and the second display;

a logic device; and

a storage device holding instructions executable by the logic device to

receive a first touch input at the first display moving an application from the first display toward the second display when the computing device is in a double portrait orientation,

display the application at a scale that decreases as the first touch input moves the application away from a lower edge of the first display,

display a first hint image on the second display based at least upon the first touch input moving the application to within a first predefined area and the second display currently not displaying a second application, the first hint image indicating that the application will move to the second display upon release,

based at least upon the first touch input releasing the application within the first predefined area and the second display currently not displaying the second application, move the application to the second display and restore an original scale of the application, and

when the computing device is in a double landscape orientation, receive a second touch input at the first display moving the application that is currently displayed on the first display and not the second display toward the second display, and display the application at a scale that decreases as the second touch input moves the application away from a side edge of the first display.

11. The computing device of claim **10**, wherein instructions are further executable to,

when the first application is displayed on the first display and the second application is displayed on the second display, receive a touch input at the first display opening a third application from the first application, and

display the third application as being stacked over the first application.

12. The computing device of claim **11**, wherein the instructions are executable to receive a touch input closing the third application, and displaying the first application on the first display.

13. A method enacted on a computing device, the computing device comprising a first portion comprising a first display and a first touch sensor, and a second portion comprising a second display and a second touch sensor, the second portion connected to the first portion via a hinge, the hinge defining a seam between the first display and the second display, the method comprising:

displaying a first application on the first display,

when the computing device is in a double portrait orientation,

receiving a first touch input at the first display moving the first application toward the second display,

displaying the first application at a scale that decreases as the first touch input moves the application away from a lower edge of the first display,

based at least upon the first touch input releasing the application within a first predefined area, moving the application to the second display and restoring an original scale of the application, and

when the computing device is in a double landscape orientation,

receive a second touch input at the first display moving the application that is currently displayed on the first display and not the second display toward the second display, and

display the application at a scale that decreases as the second touch input moves the application away from a side edge of the first display.

14. The method of claim **13**, further comprising, based at least upon the first touch input releasing the application within a second predefined area, spanning the application across the first display and the second display.

15. The method of claim **13**, further comprising, based at least upon the first touch input releasing the application within a third predefined area and the second display currently displaying a second application, swapping the application on the first display with the second application on the second display.

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